

# AGRICULTURAL OUTLOOK

June 1989

Economic Research Service  
United States Department of Agriculture



Ban on Soil Fumigants:  
What Cost? page 32



# AGRICULTURAL OUTLOOK

June 1989/AO-153

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## Departments

- 2 Agricultural Economy
- 10 Commodity Spotlights
  - The Hormone Debate
  - Winter Wheat Prospects Droop
  - The Rice Marketing Loan: How Is It Working?
  - Apple Prices Depressed Following Alar Scare
- 18 World Agriculture and Trade
  - Growth In Nitrogenous Fertilizer Trade Slowing
  - Demand Increasing In the Soviet Union
- 22 Farm Finance
  - Farm Credit Recovery Continues
- 24 General Economy
  - Second-Half Inflation Could Be Lower
- 26 Resources
  - Rise In Land Values Continues
  - Lower Input Use Can Boost Returns
- 30 Food and Marketing
  - Food Prices Rise

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## Special Articles

- 32 Banning Soil Fumigants: What Cost?
- 34 Generic Certificates Cut Stocks and Boost Income

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## Statistical Indicators

- |                                   |                                    |
|-----------------------------------|------------------------------------|
| 38 Summary Data                   | 54 World Agriculture               |
| 39 U.S. and Foreign Economic Data | 55 U.S. Agricultural Trade         |
| 40 Farm Prices                    | 58 Farm Income                     |
| 41 Producer and Consumer Prices   | 62 Food Expenditures               |
| 43 Farm-Retail Price Spreads      | 62 Transportation                  |
| 45 Livestock and Products         | 63 Indicators of Farm Productivity |
| 49 Crops and Products             | 63 Food Supply and Use             |

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Contents of the report have been approved by the World Agricultural Outlook Board, and the summary was released May 19, 1989. Materials may be reprinted without permission. Agricultural Outlook is published monthly except for January/February combined issue. Price and quantity forecasts for crops are based on the May 11 World Agricultural Supply and Demand Estimates.

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**The next issue** of Agricultural Outlook (AO-154) is scheduled for mailing on July 5, 1989. If you do not receive AO-154 by July 19, call the managing editor at (202) 786-1494 (be sure to have your mailing label handy). The full text and tables of AO-154 will also be distributed electronically; additional information on this is available at (202) 447-5505.

## In Brief . . . News of Winter Wheat, Farm Credit, Soil Fumigants

Despite the weather damage already done to the winter wheat crop, and higher wheat prices, the prospects for aggregate farm income are not much changed from what was expected late last year. However, the weather has already changed the prospective distribution of farm income.

Wheat farmers in areas with adequate rainfall or with large carryin stocks will have higher incomes because prices are up. But wheat farmers who were hit hard by the dry weather this winter and spring and who lack stocks or crop insurance will sustain losses.

This year's U.S. winter wheat production is forecast down 8 percent from last year, to the lowest in 11 years. Dryness, winterkill, and wind damage suggest winter wheat harvested area will be up only 3 percent, despite a 12-percent rise in planted acreage.

But greater acreage planted and a rebound in yields for the spring wheats should increase total U.S. wheat production by 13 percent over last year's drought-reduced crop. Nevertheless, lower carryin stocks will mean that total U.S. wheat supplies will be down 14 percent from 1988/89.

While larger production in competing exporter countries and smaller U.S. supplies will cut U.S. exports, total use will exceed production and U.S. stocks will decline. World wheat production is forecast to grow by 6 percent in 1989/90. U.S. season-average prices are projected at \$3.80-\$4.20 bushel, up from \$3.74 last season.

World coarse grain production is forecast to increase by 14 percent in 1989/90, with gains in U.S. production accounting for much of the increase. U.S. ending stocks of corn are expected to grow by 20 percent, and season-average prices are expected to fall.



Record-high numbers of cattle entered feedlots in January-March. Fewer replacement heifers than expected may be held for herd expansion, reflecting dry pasture conditions, especially in some Plains States. Higher beef production and lower prices are expected through July.

In the 9 weeks after the national news media focused on Alar, the fresh red delicious apple industry in Washington State lost an estimated \$23 million. While apple shipments have recovered somewhat, prices remained lower than usual for the spring months in some areas.

The Soviet Union is entering a new economic era with the Gorbachev initiatives. Several factors, including Gorbachev's reforms, are pushing up the Soviet demand for grain and protein feeds. But despite rising inflationary pressures, the Government has postponed retail price increases. With rising incomes and controlled prices, shortages are becoming more acute, espe-

cially for food. Supplies must increase substantially over the next several years to prevent the situation from getting worse.

Commercial farm lenders are recovering rapidly from the financial problems of just 2 years ago, thanks to the improving farm economy. The Farmers Home Administration, however, continues to manage a highly stressed farm loan portfolio. The 1988 yearend data do not show that last year's drought slowed the recovery.

The Federal Reserve's tightening of the money supply has cooled the underlying inflation rate, so it seems unlikely that the Fed will continue to tighten. This points to falling interest rates and real GNP growth at an annualized 2.5 to 3 percent for the second half of 1989. So the general economic environment should be mildly supportive for U.S. agriculture.

Concerns about the environmental effects of fertilizer and pesticides have spurred interest in farming practices that cut fertilizer and pesticide use. USDA survey results suggest that lowered chemical input use may lower per-unit cash production costs, and boost profits for some crop mixes in the Corn Belt.

With the Environmental Protection Agency informally reviewing whether to allow farmers to continue to use soil fumigants, an ERS simulation study suggests that consumers would pay \$3-\$5 billion more annually in the short run for tomatoes, potatoes, and tobacco if fumigants were banned.

In the short run, producers using fumigants would lose \$100-\$200 million annually, while those not using fumigants would be better off by \$500-\$800 million. Long-term effects would probably be smaller, as processors would contract for more acres of the affected crops and more would be imported.





## Agricultural Economy

### Weather Redistributes Farm Income

Despite the weather damage already done to the winter wheat crop, and higher wheat prices, the prospects for aggregate farm income are not much changed from what was expected late last year. However, the weather has already changed the prospective distribution of farm income.

In general, wheat farmers in areas with adequate rainfall or with large carryin stocks will have higher incomes because prices are up. But wheat farmers who were hit hard by the dry weather this winter and spring and who lack stocks or crop insurance will sustain losses.

#### *With Normal Weather, Net Farm Income Will Rise*

Late last year, before the dry winter materialized, analysts were looking for 1989/90 to be a growth year for U.S. agriculture. Prices were strong, as last year's drought and acreage reduction programs lowered 1988/89 production. Last fall, facing lower acreage reduction requirements and higher prices, farmers increased their winter wheat plantings 12 percent. In March, farmers said they planned to plant 17 percent more spring wheat, 8 percent more corn, and 5 percent more soybeans than last year.

The farm financial picture reflects this situation. Farmland values rose 6 percent during the year ending last February, driven in part by expectations of higher returns on farm assets. Farm debt continued to fall last year, as farmers worked their way out of the early and mid-1980's financial stress. Farm debt is forecast to rise this year for the first time since 1982, as farmers expand acreage and buy more equipment, seed, fertilizer, and land.

Assuming normal weather through the fall, cash receipts could be record-high this year, but lower Government payments and higher expenses from the expansion will offset the gain, and net cash income will be down. However, rising production will increase stocks somewhat, so net farm income will go up. Net farm income measures the value of crops produced minus costs, and includes both sales and additions to inventory.

Now, the key to this outlook is the "normal weather" assumption. Since last fall, extremely dry conditions have prevailed in parts of the Plains States (especially Kansas), the western Corn Belt, and California. This differs from last summer's drought, when the eastern Corn Belt and the Southeast were also hit hard.

### *Winter Wheat Down, Trend Corn Expected*

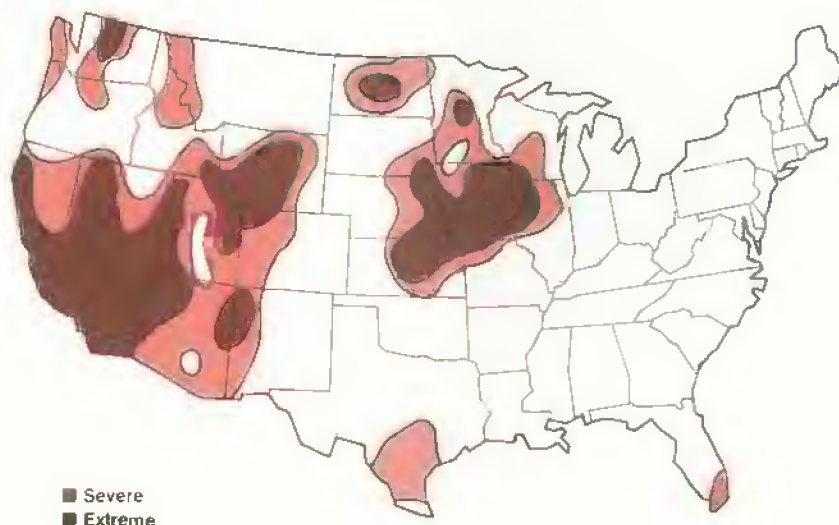
Because of the bad weather, the winter wheat crop now being harvested is estimated down 8 percent from last year, despite increased acreage. Last year, the winter wheat was largely spared by the drought.

While this year's smaller crop will help keep wheat prices high, large crops forecast in the European Community and some other major exporting countries will moderate the upward price pressures. With U.S. stocks low, however, the reduced winter wheat crop and higher prices will cut U.S. wheat exports.

Farmers in more northern States likely will increase their spring wheat plantings over earlier intentions. Much of the winter wheat killed by frost in Washington and Montana has been reseeded with spring wheat.

Farmers who participate in the 1989 commodity programs and suffer program crop failures can replant with different crops and still collect deficiency payments for the original crop. To do this, a farmer's Agricultural Stabilization and Conservation County Committee has to verify the crop failure.

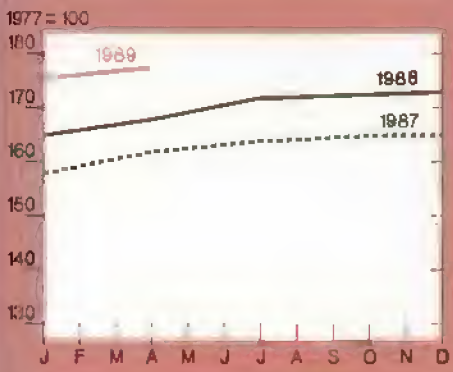
Kansas and Western Corn Belt Suffering Drought



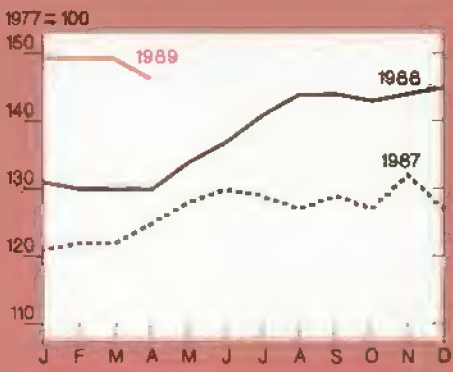


Prime Indicators of the U.S. Agricultural Economy

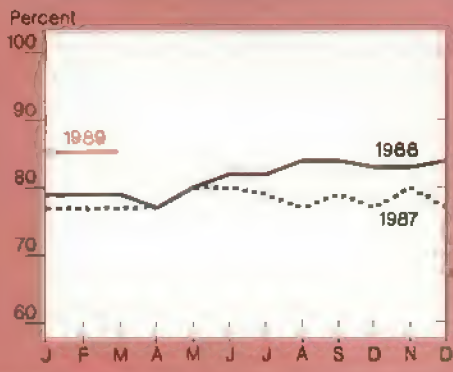
Index of prices paid by farmers<sup>1</sup>



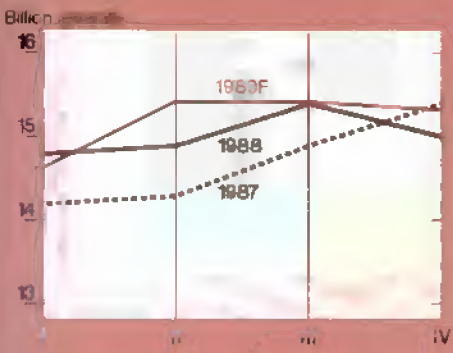
Index of prices received by farmers<sup>2</sup>



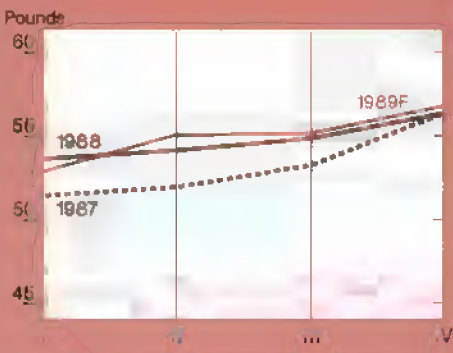
Ratio of prices received to prices paid



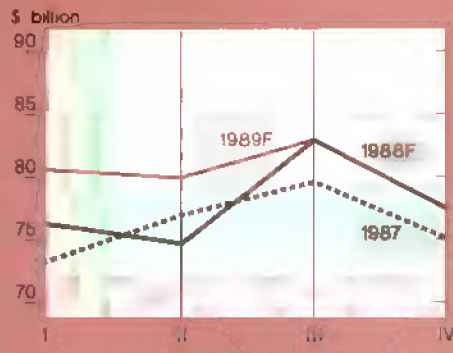
Red meat & poultry<sup>3</sup> production



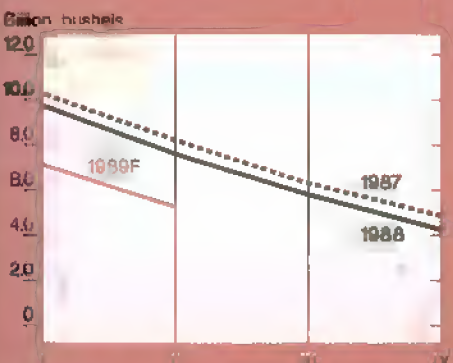
Red meat & poultry consumption, per capita<sup>3,4</sup>



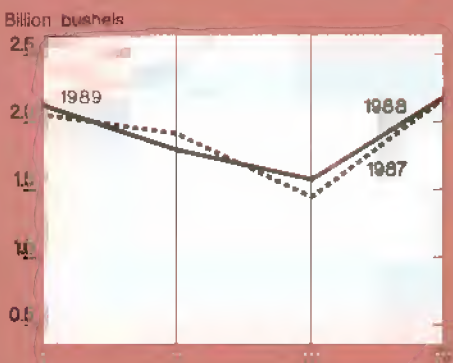
Cash receipts from livestock & products<sup>5</sup>



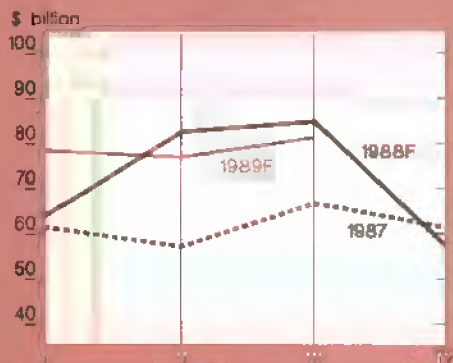
Corn beginning stocks<sup>6</sup>



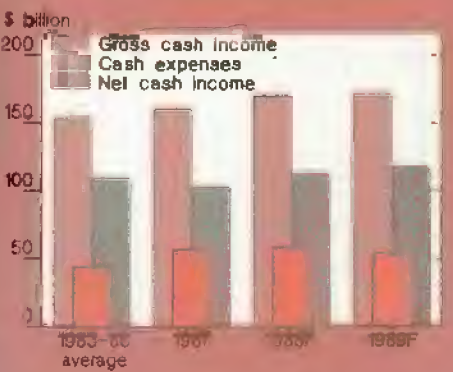
Corn disappearance<sup>6</sup>



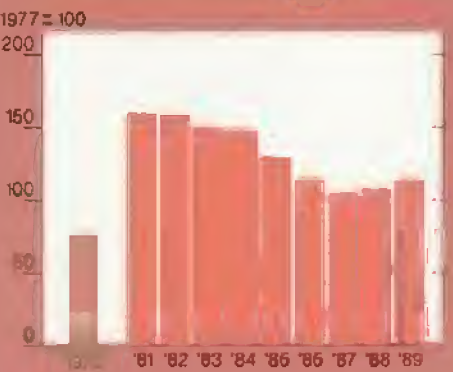
Cash receipts from crops<sup>5</sup>



Farm net cash income



Farm real estate values



Farm value/retail food costs



<sup>1</sup>For commodities and services, interest taxes, and wages. <sup>2</sup>Beginning in 1986 data are only available quarterly. <sup>3</sup>For all farm products. <sup>4</sup>Calendar quarters. Future quarters are forecasts for livestock, corn, and cash receipts. <sup>5</sup>Retail weight. <sup>6</sup>Seasonally adjusted annual rate. I=Dec.-Feb.; II=Mar.-May; III=June-Aug.; IV=Sept.-Nov.; F=forecast.

Farmers with a failed winter wheat crop may replant to sorghum, a drought-tolerant crop. But dry soils are likely to encourage some farmers with failed acres to keep their land fallow for the summer.

Despite some rainfall in late April and early May, conditions in the western Corn Belt have raised concerns about the coming corn crop. This spring, soils in Iowa were very dry, and the dryness slowed planting. Iowa is the largest corn-producing State.

Since 1954, there have been only 5 years when spring soil conditions in Iowa were drier. The records of early season moisture conditions and harvest yields show there is at least a 50-50 chance that late spring and early summer rains will be sufficient to produce trend, or near-trend, yields this year. In short, it is too early to forecast damage to the U.S. corn crop.

#### **Weather Prospects Mixed**

While long-range weather forecasting is a risky business, the 90-day forecast through July calls for below-normal rainfall in the western Corn Belt and parts of the Plains States. Nonetheless, weather patterns appear to be returning to normal after last year, and another widespread drought is not likely. Yet there are pockets of drought, and production of specific crops will be cut in those areas.

The USDA, along with other Government agencies, has set up a 1989 Drought Task Force. The Task Force will keep track of the evolving weather and farming picture, and could recommend Federal relief efforts if conditions warrant.

Besides making deficiency payments for failed crops and allowing a second crop on failed acres, USDA has initiated emergency haying and grazing on acreage idled under the commodity programs in counties where a livestock emergency has been declared.

Emergency feed and feed assistance programs also have been established to help stressed livestock producers in qualifying counties. In addition, for a reasonable rental charge, farmers are allowed to graze cattle on foreclosed properties held by the Farmers Home Administration. [Gregory Gajewski (202) 786-3313]

## **Livestock, Dairy, And Poultry**

*Record numbers of feeder cattle entered feedlots during the first quarter of this year in the 13 quarterly reporting States. The April 1 on-feed numbers were the largest since 1985. The large on-feed inventory of heifers over 700 pounds indicates that the number of replacement heifers held for herd expansion may have been reduced owing to dry conditions, especially in the central Great Plains. Expectations are for higher beef production and lower cattle prices through July.*

*Tight fed cattle supplies, especially in February and early March, resulted in reduced fed slaughter and increased fed cattle prices. Fed cattle prices eased off late in the first quarter and are likely to move down further in anticipation of increased marketings from May through midsummer.*

#### **Forage Conditions Key to Second-Half Marketings**

Steer and heifer slaughter was depressed during the first quarter, but total cow slaughter was up. Dairy cow slaughter rose 8 percent over the first quarter of 1988, while beef cow slaughter declined 5 percent. Cow slaughter rose well above a year earlier in April as dry weather persisted in some areas. Range and pasture conditions on May 1 were 68, down from 73 a year ago, and below the 1979-88 average of 79. Hay stocks on May 1 were the lowest since 1965.

The key to late summer and fall marketings will be forage conditions and subsequent changes in the number of heifers retained for the breeding herd. A modest increase in heifer retention is still expected, which could result in a 3-percent drop in second-half beef production from a year earlier.

#### **Retail Beef Prices Have Increased**

Retail Choice beef prices rose during the first quarter, reaching a record \$2.70 per pound in March. March cutout values for boxed beef rose to \$117.09 per cwt for fed cattle and \$100.41 for cows. Retail prices continued strong in April, again averaging \$2.70 a pound. The

strong retail prices resulted in a widening farm-to-retail price spread, which averaged \$1.07 in January-April, compared with \$1.02 a year earlier.

Boxed beef prices moved in a narrow band during March and April, as live cattle prices decreased. Cutout values are expected to remain in the \$117-\$121 range until supplies increase later in the second quarter.

As finished cattle supplies rise during the second quarter, live cattle prices are expected to slip to the low \$70's, with boxed beef prices also responding, but to a lesser degree. The spread between live and boxed beef prices may widen to help compensate packers for losses during last winter's historically low farm-to-carass spreads and reduced slaughter schedules.

#### **Hog Market at Turning Point**

The hog market has reached a turning point, both seasonally and cyclically. Producers can expect prices to improve but probably remain below a year earlier through most of the summer. Heavy supplies of frozen pork, which will be drawn out of storage, will constrain price rises in the next few months.

The seasonal turning point came in early May, as hog slaughter began to drop from its spring peak. This decline is expected to last until July, and should keep upward pressure on hog prices. The summer peak likely will be established when slaughter begins to stabilize.

Pork production is nearing a cyclical downturn; breeding herds declined during the second half of 1988. The decline began last summer, partly from heat stress, and continued as producers' returns dropped below breakeven. The lag between breeding and slaughter of market hogs is usually 10 to 11 months.

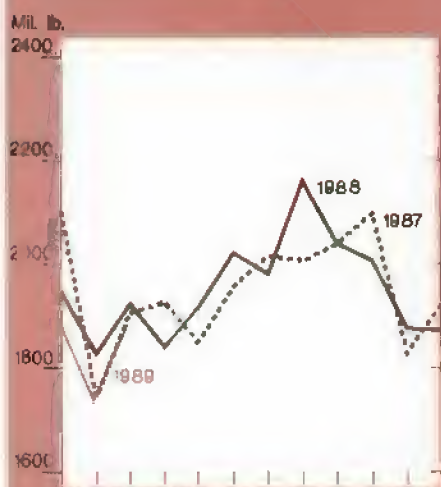
Pork production should drop below a year earlier this summer, and remain lower through the rest of 1989.

#### **Pork Freezer Stocks To Check Prices**

On March 31, freezer stocks were 15 percent larger than a year earlier. Most of these stocks will be liquidated over the summer, supplementing the seasonally



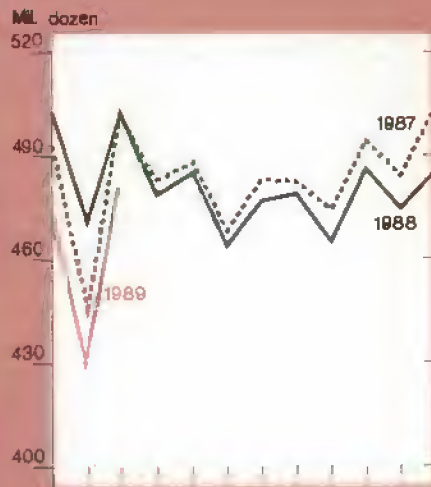
Commercial beef



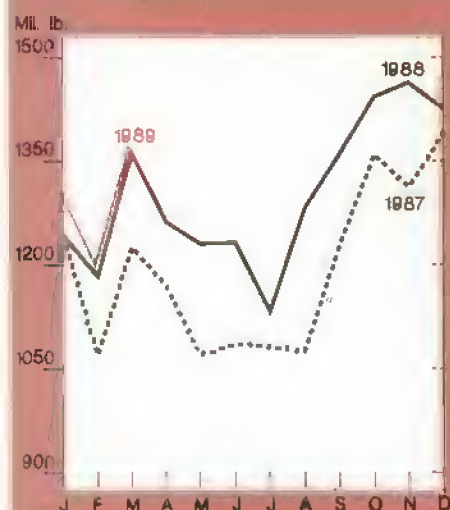
Broilers<sup>1</sup>



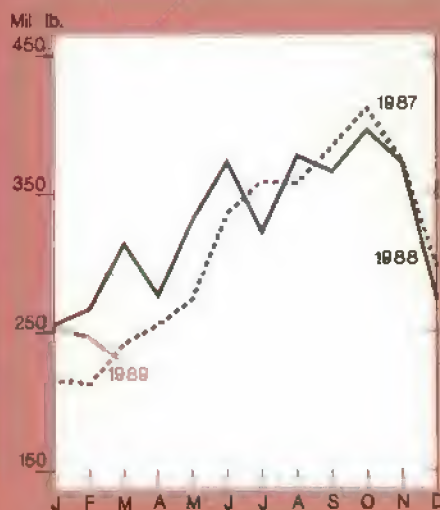
Eggs



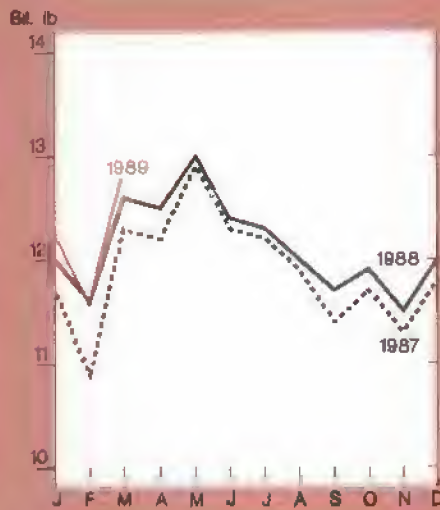
Commercial pork



Turkeys<sup>1</sup>



Milk



<sup>1</sup>Federally inspected production, ready-to-cook.

low supply of fresh pork. The expected rises in both wholesale prices and hog prices could be dampened by the draw-down. Even so, prices will probably be above the first 4 months of this year.

The uptick in hog prices comes none too soon for producers, whose profits have been squeezed since last fall. Except for a brief period in December, barrows and gilts traded mostly between \$36 and \$43 per cwt from September 1988 through April 1989. Average breakeven prices were estimated in the mid-\$40's per cwt.

Assuming favorable crop conditions and lower feed prices, the breakeven point is expected to decline through the rest of the year. Producers may anticipate im-

proving returns as the year progresses. Meanwhile, barrow and gilt prices are forecast to hold in the mid-\$40's per cwt before declining seasonally in September. Fourth-quarter prices may average in the low \$40's.

## Broiler Production Increases

Broiler production is expected to increase 5 percent in 1989, compared with 4 percent last year. However, the 3-percent first-quarter increase was well below the 7-percent rise of first-quarter 1988. Second- and third-quarter production totals are likely to expand 4 and 7

percent, boosted by high prices and lower feed costs. Net returns have been positive since the second quarter of 1988, and are expected to continue at 7-10 cents per pound in 1989.

Broiler prices continued strong into this year; the 12-city wholesale composite price averaged almost 64 cents per pound in April, well above the 49 cents of a year earlier and the first quarter's 59 cents. With higher summer demand for broilers and tighter second-half beef supplies, wholesale prices may average 68-70 cents for the second quarter and 65-71 cents for the third.

Broiler export volume surged to 132 million pounds during the first 2 months of

this year, up 25 percent from a year earlier. Value was up 28 percent to \$60 million. Cheaper parts held the average unit export value to about 45 cents per pound, less than 3 percent above January-February a year earlier. Chicken parts made up 96 percent of the total, compared with 83 percent a year earlier.

#### ***Turkey Production Slows, Prices Rise***

Turkey production declined about 4 percent from a year earlier for the first 4 months of 1989. Prices have increased since January, bringing net returns slightly above breakeven in April. Poult placements from September through April were 4 percent ahead of a year earlier.

Wholesale prices continued climbing in April, with Eastern region hens averaging 68 cents per pound, up from 62 cents in the first quarter. During March and April, prices of toms, which are preferred for further processing, moved ahead of hen prices. Tom prices averaged nearly 70 cents in April, 50 percent above April 1988.

Exports through February were very slow at about 5 million pounds, down 55 percent from a year earlier. Mexico took one-third, followed by Canada with one-tenth. Compared with January-February a year earlier, average export unit values were up 36 percent to 53 cents per pound. The higher prices help explain the decline in volume.

#### ***Egg Supplies Continue Tightening***

U.S. egg production is expected to decline about 3 percent in 1989, reflecting producers' adjustments to prolonged low returns. First-quarter 1989 production declined 6 percent from a year earlier. The table-egg-type laying flock on March 1 was about 5 percent smaller than a year ago.

Second- and third-quarter production totals are expected to be down 3 and 2 percent from a year earlier. Net returns to producers are estimated at about 11 cents per dozen for the first quarter, and are expected to be above breakeven for the rest of 1989.

Wholesale egg prices have been strong in 1989. Prices for New York grade A large averaged 79 cents a dozen for the

first quarter, up from 55 cents a year earlier. They peaked in mid-March (Easter) at 98 cents per dozen, and then fell to the mid-70's in early April and remained there into May. Second-quarter prices are expected to be 73 to 75 cents, and second-half prices may average in the mid-70's. Retail prices averaged \$1.03 in March, well above the 74 cents of a year earlier, and \$1.00 in April.

U.S. egg exports during January and February, at 16.6 million dozen equivalent, were down about 28 percent from a year earlier. Exports to Japan, practically all as egg products, were unchanged at 8.5 million dozen equivalent. Japan took more than 80 percent of U.S. egg product exports. Hatching egg exports were down about 6 percent, but continued strong to Iraq. Table egg exports were down sharply, with Hong Kong taking slightly over 50 percent. Exports to Hong Kong were assisted by Export Enhancement Program sales.

#### ***Farm Milk Prices Up In 1989***

Strong domestic and foreign markets for cheese and nonfat dry milk have helped keep 1989 farm milk prices above a year earlier. The Minnesota-Wisconsin (M-W) price for manufacturing grade milk reached \$11.09 per cwt during April, 76 cents above a year earlier. This was 26 cents above the second-quarter support price and 11 cents over the March price. The April all-milk average price was \$12.40 per cwt, up 80 cents from a year before.

Prices for nonfat dry milk in international markets remained high enough to keep domestic prices above support during the first 5 months of 1989. Prices of substitutes for nonfat dry milk (e.g., dry buttermilk and whey protein concentrate) continue to reflect the strong prices of nonfat dry milk.

American cheese prices started to move up in late March, as domestic use expanded, commercial stocks stayed low, and butter-powder plants escalated competition for milk. By mid-May, wholesale cheese prices were about 3 cents above the new support purchase prices, which are \$1.2025 per pound for block Cheddar and \$1.1625 per pound for barrel cheese.

Manufacturing grade milk probably will remain above the support price during the spring, even though production is at its annual peak. Wholesale cheese prices are likely to be above support purchase prices. Nonfat dry milk prices should also remain strong.

The April-June average price of all milk probably will be 70-80 cents above a year earlier. For all of 1989, farm milk prices probably will average 40-70 cents higher than 1988's \$12.21 per cwt.

**For further information, contact: Ken Nelson, coordinator; Kevin Bost, hogs; Lee Christensen and Larry Witucki, broilers, turkeys, and eggs; Fred White, cattle; and Jim Miller and Sara Short, dairy. All are at (202) 786-1285.**

### **Field Crops Overview**

*Expanded acreage and improved yields are projected to boost 1989/90 U.S. grain production to 294 million metric tons, up 91 million from last year's drought-reduced crop. Soybean outturn may rise by 27 percent. Cotton production is expected to decline. Grain and oilseed domestic use is forecast to increase, but modest gains in ending stocks are likely. However, poor weather has limited the recovery of U.S. wheat production and stocks are forecast to decline, perhaps by more than 15 percent.*

*Except for wheat, season-average crop prices are likely to be lower in 1989/90. The U.S. should export substantially more cotton, while soybean and soybean meal exports will partially recover. But shipments of wheat and coarse grains likely will drop.*

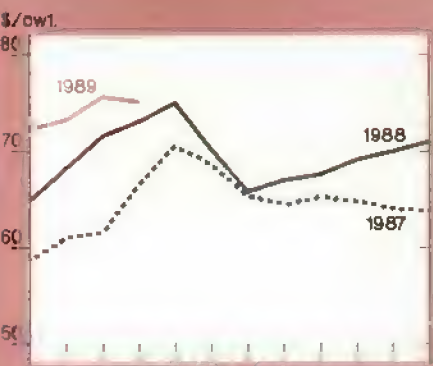
#### ***U.S. Winter Wheat Prospects Poor***

The total U.S. wheat crop for 1989/90 is estimated at 2.05 billion bushels, up 13 percent from last year's drought-reduced outturn. Except for last year, this would be the smallest U.S. wheat crop since 1978 (see the Agricultural Economy column and the Winter Wheat Spotlight).



Commodity Market Prices

Choice steers, Omaha



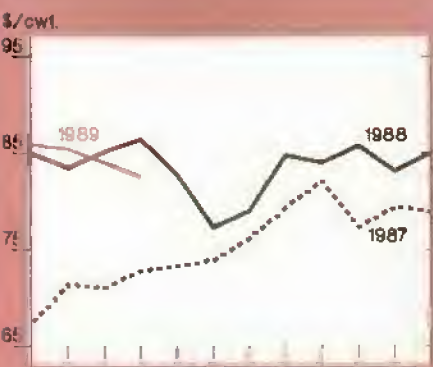
Broilers, 12-city average



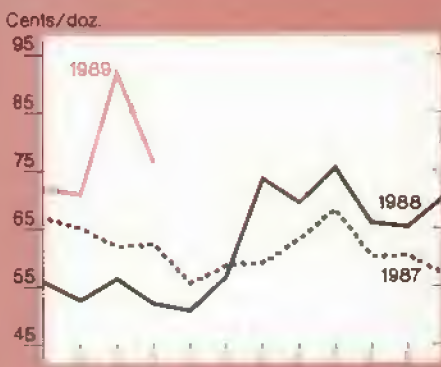
Corn, Chicago<sup>3</sup>



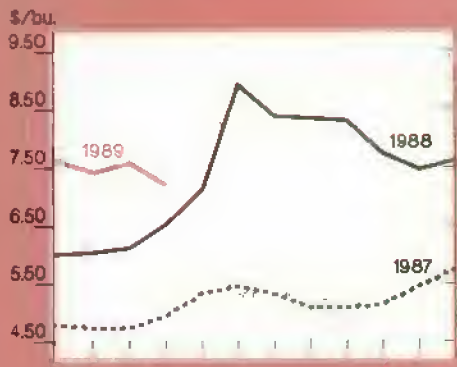
Feeder cattle, Kansas City<sup>1</sup>



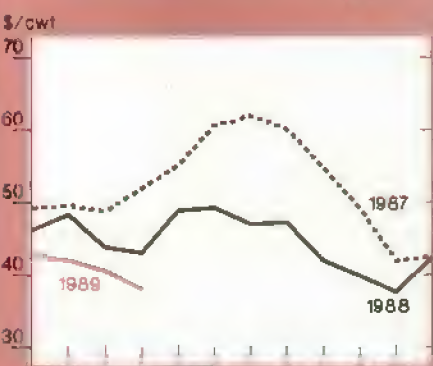
Eggs, New York<sup>2</sup>



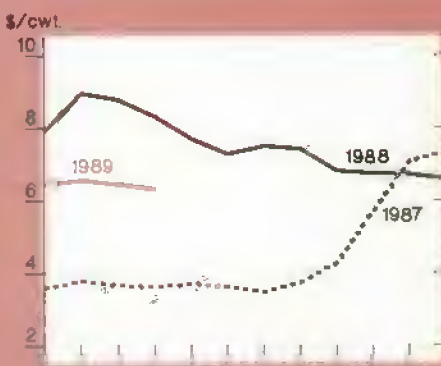
Soybeans, Chicago<sup>4</sup>



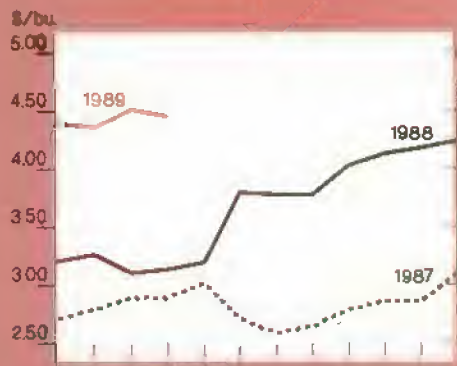
Barrows and gilts, 7 markets



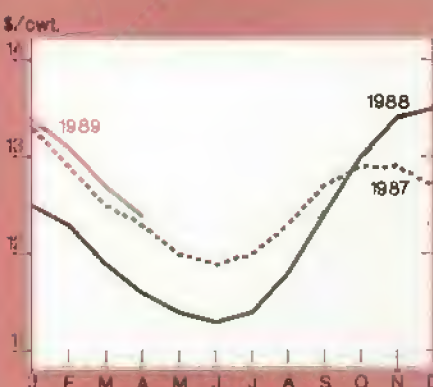
Rice (rough), SW Louisiana



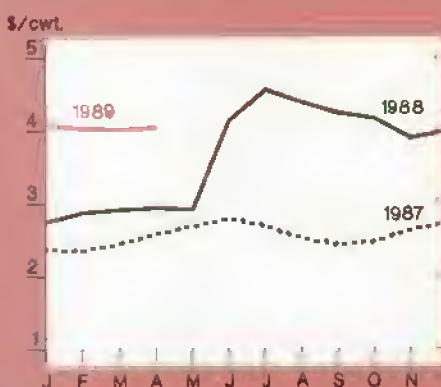
Wheat, Kansas City<sup>5</sup>



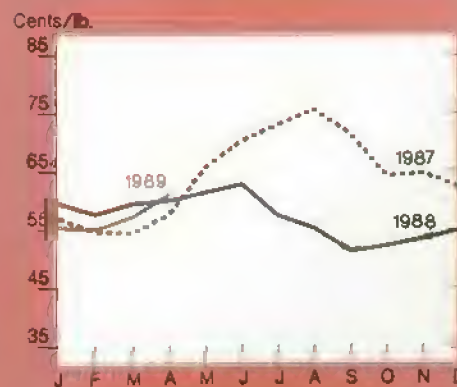
All milk



Sorghum, Kansas City



Cotton, average spot market



<sup>1</sup>600-700 lbs., medium no. 2. <sup>2</sup>Grade A large. <sup>3</sup>No. 1 yellow. <sup>4</sup>No. 2 yellow. <sup>5</sup>No. 1 HRW

The winter wheat crop has been seriously damaged by poor weather. Kansas, the largest winter-wheat producing State, has had the driest midsummer-through-April period since 1975-76. As a result, Kansas wheat is heading at 10-14 inches, compared to a normal 20-24 inches.

The winter wheat crop in some areas outside Kansas is under stress as well. Conditions continue to deteriorate in Nebraska and Texas because of a lack of moisture, and freeze damage in some counties.

In mid-May, 44 percent of the U.S. winter wheat crop was in poor or very poor condition in 20 reporting States, compared with 15 percent a year earlier. In Kansas, 85 percent was poor or very poor. Early and mid-May rains in central Texas and elsewhere did little to benefit the crop. As of May 14, 57 percent of the winter wheat in Texas was in poor or very poor condition.

#### ***Spring Wheat Sowing Progresses***

Spring wheat planting is well underway. However, it is behind both last year's pace and the 5-year average in all major producing States (including Idaho, Minnesota, Montana, North Dakota, and South Dakota). Late-season snowfall, cold temperatures, and excessive soil moisture in some parts of the Red River Valley are responsible.

Only 77 percent of the nation's spring wheat had been planted by May 14, compared with 93 percent in 1988 and an average of almost 80 percent over the last 5 years. This slow pace likely did not limit the final area though; seeding picked up substantially in mid- to late May.

#### ***World Wheat Production To Rebound; Stocks Remain Tight***

World wheat production in 1989/90 is projected to increase 6 percent, with record foreign production. But the production will not rebuild stocks, and the world stocks-to-use ratio will remain

close to the 1988/89 low. Consequently, world prices will remain relatively high.

With this year's higher prices, and more normal weather in Canada and Argentina, foreign wheat exporters are expected to harvest significantly more acreage in 1989/90, and the average yield will be higher. Output of the major foreign exporters is expected to reach 130 million tons, a gain of 15 percent and the largest crop since 1984/85. Much of this gain will be available for export.

Higher prices and good production are expected to hold 1989/90 world wheat imports slightly below this year's 98 million tons. China and the USSR, normally the biggest influences on world trade, are both projected to harvest larger crops; their imports may not rise. The Soviets' shift away from imports of feed wheat, as supplies tightened and prices rose, is the largest factor in the 8-million-ton drop in world trade since 1987/88.

Stable world imports, larger competitor supplies, and tight U.S. supplies are expected to combine to cut U.S. wheat exports 21 percent to 31.3 million tons in 1989/90.

#### ***U.S. Corn Production Expected To Rebound***

Domestic corn outturn for 1989/90 is forecast to increase to 7.85 billion bushels, compared with 1988/89's 4.9 billion. Unlike the winter wheat estimate, which is based on a survey, other U.S. early season commodity forecasts are based on an analysis of trend yields and the March *Planting Intentions*.

Production of this magnitude, despite continued high domestic use and exports of about 1.95 billion bushels, would lead to a modest expansion in ending inventories, up 400 million bushels to over 2.23 billion by the end of 1989/90. Prices, forecast at \$2.45 to \$2.70 a bushel for 1988/89, are likely to be in the \$1.65-\$2.05 range for 1989/90.

Corn plantings by mid-May were somewhat behind last year's pace and just under the longer term average. Much of the slowdown was attributed to wet soils; recent precipitation in Indiana limited field work to only 2-3 days per week. Only 40 percent of Indiana's anticipated

corn area was sown by mid-May, compared with last year's quick pace of 91 percent and a long-term average of 70 percent.

Sorghum plantings by State are slightly below the 1988/89 pace, but equal to their 5-year average. Sowings in the Southern States are well underway; in Texas, 67 percent of the crop was in the ground by mid-May. But the crop in more northern key States, Kansas and Nebraska, was only about 10 percent planted.

#### ***World Coarse Grain Production Recovers***

The small U.S. coarse grain crop was the major reason for the drop in world production and stocks in 1988/89, although crops in Argentina, Canada, and China were also significantly smaller. World output in 1989/90 is projected to rise 14 percent. Most of the increase will be due to a larger U.S. crop. But foreign production is expected to be a record-high 590 million tons. With production recovering in both Argentina and Canada, major foreign exporters will increase output by more than 10 percent.

The Soviet Union holds the key to trade again in 1989/90. Soviet imports doubled in 1988/89; replacement of feed wheat was, in part, the reason for the first significant jump in world coarse grain trade since 1985/86.

The first projections for 1989/90 show a larger Soviet crop. But rising feed demand and high world feed-wheat prices should keep Soviet coarse grain imports only slightly below this year's 23 million tons. U.S. exports are expected to drop 9 percent to 57 million tons during 1989/90 (Oct.-Sept.).

#### ***World Cotton Production Down, U.S. Exports Up***

U.S. cotton production in 1988 totaled 15.4 million bales, the most since 1981. The 1989 crop is estimated at 13.5 million bales, down 12 percent. Although yields are expected to be near trend, changes in the upland cotton program, lower water quotas for irrigation in the west, and a lack of moisture in the Rio Grande Valley resulted in substantially lower planted acreage this year.



Cotton use could increase 1.8 million bales in 1989/90 from 1988/89's estimated 13.2 million. Domestic textile activity has increased and may result in consumption near 7.5 million bales.

A smaller U.S. cotton crop will mean lower world production in 1989/90, since foreign production is expected to be little changed from this year's 68.8 million bales. Foreign consumption is projected to increase again, so world trade should rise.

With lower 1989/90 beginning stocks and higher domestic consumption, competitors are expected to have smaller exportable supplies. U.S. exports are therefore likely to be up significantly from this year's unusually low 5.9 million bales. The preliminary projection puts exports at 7.5 million bales, the second largest in three decades. The U.S. share of the world market is expected to rebound to nearly 30 percent in 1989/90 from this year's 24 percent.

**U.S. Recovery Means Larger World Oilseed Production**

Larger area and trend yields point to a U.S. soybean crop of about 1.95 billion bushels for 1989/90, 27 percent above this year. Dry conditions in portions of the Corn Belt may limit plantings somewhat, but wet soils elsewhere, including the Southern States, may favor soybeans over corn.

Bean prices are forecast to average \$7.35 per bushel for 1988/89. Prices in 1989/90, responding to anticipated production gains, are forecast at only \$4.75-\$6.25. Prices in 1988/89 have followed the classic short-crop pattern by reaching highs near \$8.50 per bushel last July and declining since. An expected large South American crop will continue to moderate prices.

Despite falling profitability in the livestock sector, U.S. domestic soybean meal disappearance has held up after a weak first quarter. But for the year it will likely trail last year's record. U.S. domestic soybean oil use for October through March was nearly 12 percent behind a year earlier, mostly reflecting soybean oil's relative price disadvantage.

World oilseed production in 1989/90 is expected to recover from last year's drought. Foreign production is likely to continue its steady upward trend, and the initial projection puts foreign output at 153.5 million tons, up 4 million. This record high will limit the U.S. soybean and meal export recovery. Details on foreign oilseeds and products will be available in July. [James Cole (202) 786-1840 and Frederic Surtis (202) 786-1824]

**For further information, contact:** Sara Schwartz, world food grains; Edward Allen, domestic wheat; Janet Livczey, domestic rice; Pete Riley, world feed grains; James Cole, domestic feed grains; Bob Cummings, world oilseeds; Roger Hoskin, domestic oilseeds; Carolyn Whitton, world cotton; Bob Skinner, domestic cotton; Jim Schaub, domestic peanuts. World information (202) 786-1824; domestic (202) 786-1840.

**Upcoming Releases from the Agricultural Statistics Board**

The following list gives the release dates of the major Agricultural Statistics Board reports that will be issued by the time the July *Agricultural Outlook* comes off press.

**June**

- 2 Egg Products
- Minn.-Wis. Mfg. Grade Milk-Final 1986-88
- 5 Poultry Slaughter
- 6 Dairy Products
- 8 Celery
- 9 Vegetables;
- Vegetables-Annual
- 12 Crop Production
- 13 Turkey Hatchery
- 16 Milk Production;
- Cattle on Feed
- 21 Catfish
- 22 Cherry Production (Tent.);
- Eggs, Chickens, & Turkeys
- 23 Cold Storage; Livestock Slaughter
- 26 Vegetables
- 28 Peanut Stocks & Processing
- 29 Ag. Prices;
- Ag Prices-Annual
- 30 Grain Stocks;
- Hogs and Pigs

**High-Value Crop Overview**

*Wholesale floriculture sales slipped 2 percent in 1988 from 1987, the first such decline since reporting was reinstated in 1984. It remains to be seen whether the slippage represents a lull while the industry catches its breath, or whether it is an early indication that the market is approaching maturity, where further expansion would be limited to increases prompted by population and income growth.*

*The equivalent wholesale value of sales in USDA's 28-State survey of 28 floriculture crops totaled \$2.24 billion in 1988. Sales rose for cut flowers and cut cultivated decorative greens (such as leatherleaf ferns and other ferns and fillers), while sales of potted flowering plants, foliage plants, and bedding plants fell.*

Growers said in March that they plan to maintain or scale back cut-flower area in 1989. However, they plan increases for potted flowering plants, foliage, bedding/garden plants, and cut cultivated greens.

A 16-percent jump in cut flower imports in 1988 may be contributing to the decline in domestic production. Cut flowers require much hand labor, which adds significantly to U.S. costs. Producers in South and Central America can pay lower wages and consequently may have a cost advantage.

The greenhouse/nursery industry, of which floriculture products are a major part, has been one of the fastest growing agricultural sectors in recent years. Sales accounted for 10 percent of all farm crop cash receipts in 1987.

**Ample Supplies and Strong Demand Create Robust Strawberry Market**

Seasonal increases in fresh strawberry shipments from California this spring pulled f.o.b. prices down to normal levels. But strong demand for fresh and processing berries likely will sustain the season-average price despite expectations for a larger crop. Smaller carryover stocks than a year earlier and the prospect of fewer processing berries coming from Mexico are contributing to the demand for U.S. berries.

Even though total acreage among the major producing States is unchanged, production likely will rise in 1989, reflecting expanded acreage in California, where yields surpass those in other States. California's strawberry acreage and production are projected 8 percent higher than last year. Yields average 49,000 pounds per acre in California, where cool ocean breezes extend the harvesting season. California produced 86 percent of the spring crop last year.

Frozen strawberry stocks on April 1 were 6 percent less than a year earlier, which may strengthen demand for processing berries. Processors in Mexico are having problems obtaining low-cost berries for freezing because of strong domestic demand for fresh berries. Consequently, exports to the U.S. likely will fall this year. Recent strength in the peso against the dollar, spurred by Mexican policies, will contribute to the reduction.

#### ***Falling Orange Prospects and Strong Demand Boost Juice Prices***

Processors boosted prices this spring, reflecting an additional 1-percent decline in the April forecast of U.S. all-orange production, already down 3 percent from January. Demand is strong for U.S. frozen concentrated orange juice (FCOJ), partly because Brazilian juice imports have been lower and prices higher.

Florida processors raised the price of FCOJ again in May, from \$5.17 per dozen 6-oz. cans to \$5.42, following successive reductions in production forecasts. Prices had fallen in January, when early forecasts indicated Florida's orange production for 1988/89 would rise 9 percent from last year. The May 1 forecast of Florida output was 144.3 million boxes, up 5 percent from 1987/88 but 4 percent below the December 1 estimate. Florida produced 89 percent of the oranges used for processing last season.

Florida's juice production in 1988/89 is estimated at approximately 175 million gallons (42 degree Brix equivalent), up slightly from last year. The growth is due to the larger orange crop rather than higher juice yields. Juice output per box, at 1.53 gallons, remains below last year's record 1.55 gallons.

Imports of Brazilian FCOJ into Florida through April were running behind a year earlier. Prices of Brazilian juice had fallen to about \$1,245 per metric ton in mid-February after reaching a high of \$2,020 last August. Prices rebounded to \$1,420 per metric ton on April 5. Brazil is a major source of FCOJ for the U.S., and the supply of juice from the two production areas has a major influence on prices in each.

#### ***Smaller-Than-Usual Stocks Keep Potato Prices Up***

Smaller stocks of fresh potatoes in storage, and spring production prospects only about 2 percent above last year, have led to some of the highest spring potato prices in several years. Higher prices this spring will boost 1989 plantings.

May 1 fresh potato stocks were estimated at 54.4 million cwt, a drop of 22 percent from a year ago and the lowest for that date since 1985. Stocks of frozen potatoes were also lower than a year earlier.

Spring potato production is forecast at 20.1 million cwt, up 1 percent from last year. Although the outlook is for near-normal spring production, supplies from the previous season are smaller and prices have remained strong.

The average price for all potato sales in April was \$8.37 per cwt., up from \$4.10 a year earlier, and the highest April average price since 1981. The average price for the 1988 crop is estimated at \$5.49 per cwt, the highest since 1984. Typically, growers follow a high-price year by planting more acreage. But higher prices for competing crops such as sugarbeets, corn, and other grain crops this spring may moderate the expansion. [Glenn Zepp (202) 786-1883]

**For further information, contact:** Ben Huang, fruit; Shannon Hamm, vegetables; Peter Buzzanell, sweeteners; Verner Grise, tobacco; Doyle Johnson, greenhouse/nursery; David Harvey, aquaculture. All are at (202) 786-1886.



## **Commodity Spotlights**

### **The Hormone Debate**

Consumer concern over additives and residues in food has intensified with the EC's ban on nontherapeutically administered hormones in meat production. In the U.S., hormones are used extensively to make beef production more efficient.

One result of the EC action is a ban on all EC-bound exports of hormone-treated U.S. beef and veal for human consumption. The EC bases its ban on consumer concerns about safety and health. The U.S., however, finds no scientific basis for such concern when hormones are properly administered.

#### **Consumers Are Concerned**

In a 1987 Food Marketing Institute survey, U.S. consumers were asked if residues in hormone-treated meat posed a health hazard. The residues were considered a serious hazard by 61 percent of those surveyed and somewhat of a hazard by 32 percent. Most consumers are familiar with the adverse publicity surrounding hormone-related incidents. Diethylstilbestrol (DES), found in Italian-produced baby food during the early 1980's, is a well-known example.

The synthetic hormone DES was used in the 1960's and early 1970's to prevent miscarriages in women and to promote growth in livestock. However, in the mid-1970's DES was determined to be



carcinogenic in humans, and it was banned for animal use in the U.S. and most other countries. Because livestock producers had an incentive to continue using the drug, a black market for DES soon developed in the EC.

Hormone use in the U.S. is regulated by the Food and Drug Administration (FDA) and USDA's Food Safety and Inspection Service. Hormones (except for melengestrol acetate, or MGA, a feed additive) must be administered by a time-release pellet inserted under the skin of the animal's ear—which is discarded at slaughter.

Because the ear pellets are easily detected, some Italian producers in the early 1980's illegally injected large doses of the black-market drug directly into the muscle tissue of veal calves. It was alleged that some of the veal containing concentrated DES was processed into baby food, causing abnormal sexual development in children.

The discovery of DES in baby food generated an antihormone campaign by European consumer groups. The campaign led to the 1985 ban on non-therapeutic use of anabolic agents (i.e., hormones) in EC meat production. It culminated in the current EC ban (effective January 1, 1989) on imports of meat for human consumption if the meat has been treated with anabolic agents. The ban is of particular concern to the U.S., where five hormones are approved for use in domestic animal production.

Recently, the U.S. and the Commission of European Communities reached an interim agreement recommended by the U.S.-EC Hormone Task Force. The measure allows U.S. producers who raise beef without the use of hormones to export their products to the EC under individual commercial agreements.

The EC will establish requirements for these U.S. producers, as well as a monitoring system to enforce these regulations. Depending on the monitoring procedures, enforcement may be difficult. It is impossible to distinguish between residues from endogenously produced hormones (hormones naturally produced by the animal) and implants of the same hormones.

#### Classification of Anabolic Agents

Category	Explanation	Drugs
Endogenous steroid hormones	Produced in animals and humans  Responsible for differences in: growth rate rate of maturity between sexes sexual characteristics of animals  Include: Estrogens Androgens Gestagens	Estradiol Testosterone Progesterone
Synthetic steroid hormones	Synthetic analogs of endogenously produced steroid hormones  Have same steroidal molecular structure and effect as steroid hormones	Melengestrol acetate (gestagenic) Trenbolone acetate (androgenic)
Non-steroid synthetic hormones	Synthetically produced substances with hormonal effects  These substances have a molecular structure slightly different from steroids and are no longer used in cattle production in the U.S.	DES (estrogenic)
Natural xenobiotic hormones	Derived from plants  Molecular similarities to endogenously produced steroid hormones but are not technically steroids.  Have the effect of steroid hormones	Zeranol (estrogenic)
Growth hormones (gh) and associated compounds	Do not directly impact physiology of animals but improve feed efficiency through improved nutrient partitioning  Highly species specific (compounds are not the same between species. Gh of animals is inactive in humans)  Includes: growth hormones growth hormone releasers other hormone-releasing compounds	Bovine somatotropin Porcine somatotropin

#### Anabolic Agents Fall Into Five Categories

Anabolic agents affect animals' metabolism, improving use of nutrients absorbed from feed. Nutrients such as nitrogen, calcium, and phosphorus are more likely to be channeled for use in muscle (lean meat) growth than for fat. For example, greater nitrogen retention results in greater protein content.

There are five kinds of anabolic agents: endogenous steroidal hormones, synthetic steroidal hormones, nonsteroidal synthetic hormones, and natural xenobiotic hormones, plus a category of other growth-promoting compounds.

The anabolic agents that are approved in U.S. livestock production, but are banned by the EC, include: estrogen (estradiol), testosterone, and progesterone, which are

endogenous steroids; melengestrol acetate (MGA) and trenbolone acetate (TBA), which are synthetic steroids; and zeranol, a natural xenobiotic hormone. Diethylstilbestrol is a nonsteroidal synthetic hormone and has been banned in both the U.S. and the EC.

#### How Hormones Affect Animals

Endogenous steroid hormones (estrogens, androgens, and progesterones) occur naturally in nearly all vertebrates. The hormones generate sexual characteristics, maintain reproduction, stimulate growth, and are essential for normal body functioning.

Many steroids with hormone-like effects are also produced in plants such as cabbage, soybeans, and peas. These steroid hormones can be reproduced in a

laboratory and then administered to cattle to enhance the effects of naturally produced hormones. The chemical structure of natural steroidal hormones is the same in many species.

TBA and MGA, while synthetic analogs of naturally produced steroids, also have a steroidal molecular structure. TBA acts much like natural androgens, but is 10 to 50 times more active than testosterone, an androgen. TBA has been approved for U.S. animal production and is effective in stimulating growth.

MGA produces effects similar to progesterone and is approved as a feed additive for heifers. Progesterone suppresses the heifers' menstrual cycle and thus conserves metabolic energy. MGA does not make animals grow faster by more efficient nutrient use, but rather by allowing the conserved energy to be channeled into lean meat production.

Xenobiotic hormones are derived from plants, have a molecular structure similar to steroid hormones, and produce similar effects. This group includes the hormone zeranol, which is estrogenic in effect. Zeranol is derived from the fungus zeralenone.

The other growth-promoting compounds group includes substances such as somatotropins (growth hormones, gh), gh-releasing factors (ghf), and somatostatins. Somatotropins are naturally produced hormones that regulate growth and metabolic processes. They can be reproduced through standard genetic engineering techniques and then injected or implanted into animals.

Bovine somatotropin (bST) increases milk production in dairy cows. Porcine somatotropin (pST) increases feed efficiency and muscle size in pigs while cutting feed intake and fat content. Gh-releasing factors and somatostatins regulate the production of somatotropins. These substances are not yet approved for use in commercial milk and livestock production.

### *Why Use Anabolic Agents?*

Cattle have greater feed requirements per pound of weight gain than hogs or poultry, and gains can be improved

through anabolic agents. These substances help producers compensate for the U.S. practice of raising steers (castrated males) rather than bulls. Bulls have better feed efficiency and higher growth rates than steers. They also produce leaner meat and can be fed to heavier weights. But bulls behave aggressively, and steers are easier to manage.

Castration of bulls, however, results in lower internal androgen production. This makes application of additional androgens necessary for steers to achieve the higher growth rates of bulls. Further, meat from steers is considered more desirable than bull meat, which is usually less tender, less marbled, and exhibits a dark red color owing to the greater maturity of bulls at slaughter.

In bulls, the greatest benefits are realized with implants of estrogen, since bulls already produce high levels of androgens. Steers, however, achieve greatest feed efficiency and growth rates through application of androgens, or synthetic hormones that have androgenic effects. Androgens and progesterones are administered to female cattle, since they naturally produce high levels of estrogen.

Anabolic agents used in beef production can improve weight gain by 5 to 20 percent, feed efficiency by 5 to 12 percent, and lean meat growth by 15 to 25 percent.

A U.S. ban on anabolic agents likely would translate into an annual loss of about 2 billion pounds, carcass weight, or about 13 percent of beef production. The estimated loss to beef producers would range from \$1 to \$3 billion annually.

### *Anabolic Agents Have Little Effect on Meat Quality*

In general, beef tenderness, juiciness, and flavor are not adversely affected by anabolic agents in steers and heifers. Anabolic agents increase the ratio of lean meat gain to fat gain over certain phases of the animal's growth. Steers gain weight more rapidly with the use of anabolic agents, allowing the animal to be slaughtered at a younger age. This results in more lean and tender meat products.

Concerns have been raised that hormones may increase water retention in treated animals, which may result in a watery residue when the beef is cooked. Although the absolute volume of water retained by the animal does increase with hormone use, so does the amount of protein. As a result, the ratio of water to protein in muscle mass remains constant.

Scientists at the World Health Organization (WHO) and the FDA have concluded that residues from proper hormone application pose no threat to human health; the residues are minuscule compared with the levels of anabolic steroid hormones produced naturally in humans.

For example, a woman who is not pregnant would have to eat 480 pounds of treated beef each day to ingest an amount equaling just 1 percent of her own estrogen production. Progesterone and testosterone residues in treated meat are also minimal relative to normal human hormone production.

The FDA has concluded that no harmful residues are present when hormones are properly administered in both dose and method, and when they are the same as hormones produced internally by humans, such as estrogens, androgens, and gestagens.

Consumers have been exposed to higher levels of normal hormonal residues in other natural foodstuffs, such as wheat germ, soybean oil, butter, and milk, than the residues in meat. For example, 3,400 nanograms of estrogen are found in 3 ounces of wheat germ, versus 1.9 nanograms found in 3 ounces of meat from hormone-implanted steers (1 nanogram equals one-billionth of a gram).

Some hormones are less active in humans than in animals. For example, MGA is 200 times less active in humans than in cattle, so low levels can be effective in animals without affecting consumers.

Consumers are concerned that hormones may act as carcinogens. The five hormones in question, however, pose a danger only at very high doses. At high levels, they can act by promoting carcinogenic activity already inherent in the



Anabolic Agents: U.S. Food and Drug Administration Approval and Animal Class Designation

Product	Manufacturer	Major chemical component	U.S.-FDA approval date	U.S.-FDA approved animal use			
				Calves	Steers	Heifers	Lambs
Compudnose	Elanco	Estradiol	3/12/82	yes	yes	yes	--
Finaplix	Hoechst Roussel	Trenbolone acetate	6/17/87	--	yes	yes	--
Heifer-Oid	Ivy Laboratories	Testosterone propionate & estradiol benzoate	7/24/84	--	yes	yes	--
MGA	Upjohn	Melengestrol acetate	6/3/77	--	--	yes	--
Raigro	International Minerals & Chemical	Zeranol	11/5/69	yes	yes	yes	yes
Steer-oid	Ivy Labs	Progesterone & estradiol benzoate	11/12/82	--	yes	--	--
SynoveX C	Syntex	Estradiol benzoate & progesterone	4/9/84	yes	--	--	--
Synovex H	Syntex	Testosterone propionate & estradiol benzoate	7/16/58	--	--	yes	--
Synovex S	Syntex	Progesterone & estradiol benzoate	2/20/56	--	yes	--	--

body. At approved doses, though, these hormones have no effect on the body's natural rate of carcinogenesis.

#### Residue Limits Set by FDA

The FDA permits hormone residues in meat to be no more than 1 percent of the natural daily production of the most sensitive segment of the population, that is, those people having the lowest production of the naturally produced hormone in question.

For example, the FDA sets the "hormonal no-effect" level for estrogens based on the daily production level of prepubertal boys, who are the lowest producers of estrogen and the most likely to be affected by that hormone. For externally produced (synthetic or xenobiotic) hormones, no-effect levels are established separately for each hormone. These no-effect levels may be well below the maximum safe level, since only 10 percent of steroid residues are absorbed by human tissues.

The danger lies in improper and illegal hormone use. Excessive doses and direct injection, which have occurred under black-market conditions, can be harmful to human health.

A black market poses dangers because the types and dosages of hormones cannot be controlled, and application is likely to be through unsafe direct injection into muscle tissue, rather than through the safer and more easily detectable ear implants.

Unlike the EC, where a black market has reportedly developed, the U.S. apparently shows no black-market activity. And a black market is not likely to develop here; there is no incentive to use illegal hormones such as DES when alternative hormones are legal and effective.

The Food Safety and Inspection Service operates the National Residue Program (NRP) in the U.S. Under this program, samples of meat and poultry are collected at all slaughtering plants under inspection authority. The samples are analyzed for the presence of unacceptable residue concentrations of pes-

ticides, animal drugs, and other potentially hazardous contaminants.

The NRP ensures that USDA-inspected products moving in commerce are safe, wholesome, and free of adulterating residues. Hormone testing has been included in the NRP since 1978. The testing program has not revealed any problem with hormone use in U.S. cattle.

Scientists have concluded that meat from animals correctly treated with anabolic agents is safe for human consumption. But the improper use of hormones has provided grounds for consumer concerns.

Some observers, however, maintain that the misinformation and sensationalism surrounding the hormone issue are the main problem. Educating producers, consumers, and policymakers about the benefits and possible health effects of hormone use in animal production is the real challenge. [Jeannine Kenney and Dick Fallert (202) 786-1710]

## Winter Wheat Prospects Droop

Winter wheat production is forecast down 8 percent from a year earlier. Planted area increased 12 percent, encouraged by lower set-asides and higher prices. However, adverse growing conditions have hurt yields and increased abandonment in some areas, leaving USDA's May estimate for the 1989/90 crop at 1.43 billion bushels.

Hard red winter wheat in the Southern Plains has been particularly hurt. Kansas, normally the largest wheat-producing State, had a dry planting season last fall, below-normal precipitation during the winter, a sudden drop in temperatures the first week in February, damaging dust storms in March, and temperatures above 100 degrees in April. Kansas' planted area increased almost 20 percent, but production is forecast to plummet almost 40 percent.

The surrounding States of Texas, Oklahoma, Colorado, and Nebraska also suffered. Total U.S. hard red winter production is forecast to decline over 20 percent from 1988/89.

White winter wheat, grown predominately in the Pacific Northwest, was also damaged by cold, and some fields reportedly were reseeded or overseeded with spring wheat. However, area planted was up enough to partially offset reduced yields.

Soft red winter wheat conditions have been generally favorable. Soft red is grown in States along and east of the Mississippi. Spring rains were generally ample, and conditions are particularly good in the Corn Belt States of Illinois, Indiana, and Ohio. Good yields on more acres may push soft red production over 550 million bushels, up 17 percent and the third highest on record. However, excessive rain during harvest could be a problem.

### *Spring Wheat Production Likely To Rebound*

In 1988/89, spring wheat was devastated by drought in the Northern Plains. Subsoil moisture remains short in some areas, but surface soils are wetter than a

year ago. Planting progress has lagged normal and is behind last year, due to cool temperatures and excess wetness in some areas. Assuming average yields and increased planting, production may rebound from about 250 million bushels in 1988/89 to about 620 million in 1989/90.

Increased spring wheat and soft red winter wheat production will more than offset the decline in hard red winter, pushing total production to 2.05 billion bushels. Earlier this year, trend yields and increased planted area had suggested a crop of 2.4 to 2.5 billion bushels. Despite the 13-percent increase in production, the total wheat supply is forecast to fall to 2.7 billion bushels in 1989/90.

Beginning stocks are forecast down 53 percent to only 594 million bushels; stocks were drawn down last year, reflecting continued relatively large exports. The slowdowns and declining yields point to the lowest total supplies since 1975/76. With such low carryin stocks, total use is forecast larger than production, and stocks are forecast to continue falling. Season average prices are forecast up from \$3.74 per bushel in 1988/89 to \$3.80-\$4.20 in 1989/90.

### *Domestic Use Stable*

Food use of wheat is not very sensitive to changes in price. The price of wheat contributes only a few cents to the price of a loaf of bread, and even less to cakes, cookies, and crackers.

Seed use of wheat is likely to expand modestly as favorable prices encourage expanded plantings. Feed and residual use may decline. Feed use for 1989/90 should fall because corn and sorghum prices will be low compared to wheat. However, there was not much incentive to feed wheat in 1988/89 either, so the decline may be modest.

### *U.S. Export Forecast Tumbles Over 20 Percent*

Wheat exports in 1989/90 are forecast to drop to 1.5 billion bushels. U.S. supplies are limited, other exporters are increasing production, and higher prices could dampen importer demand.

Canadian wheat production may rebound strongly from the drought-ravaged crop of 1988/89. Canadian exports could increase over 70 percent. Canada is the U.S.'s major competitor in the high-protein hard wheat market.

The EC is the U.S.'s largest competitor in the soft wheat market (cakes, flat breads, and crackers) and in the low-protein end of the bread wheat market. EC wheat production is expected to increase in 1989; planted area is up 4.5 percent. Favorable growing conditions in the north more than offset problems in the south.

Like the U.S., the EC exported from wheat stocks in 1988/89. Also like the U.S. stocks, in 1989/90 the EC's stocks are too low to be used again as a major source of wheat exports. But, in stark contrast to the U.S. outlook, increased production should allow the EC to maintain near-record wheat exports in 1989/90.

Competition in the soft wheat market may be more intense in 1989/90. U.S. soft wheat supplies are projected to be much higher. China and South Asia both increased demand for soft wheat in 1988/89, but Asia's 1989/90 demand may be the same or down from last year. With greater supplies and level or declining demand, soft wheat may sell at an increasing discount to hard wheat in 1989/90.

Millers may have to blend lower protein wheat and high protein spring wheat to produce some of the flour normally produced from hard red winter. There are limits on how much substitution is possible among wheat classes, so price differentials may be large, at least in the first months of 1989/90. Moreover, the relatively low price of feed grains may shrink feed demand for soft wheat.

Exportable high-protein hard wheat supplies may be reduced, and premiums bolstered, as lower U.S. supplies more than offset increased Canadian production. Stable demand and tight supplies may increase hard wheat premiums.

U.S. Government decisions on CCC and Farmer-Owned Reserve stock availability, as well as the Export Enhancement Program, may favor marketing wheat in order to reach the export forecast of 1.15 billion bushels.



These policies and decisions could reduce ending stocks to 500 million bushels in 1989/90.

A major uncertainty is how China and the USSR will respond: whether they will allocate more scarce foreign exchange to maintain or increase wheat imports, given the political unrest in their urban areas. [Ed Allen (202) 786-1840]

### The Rice Marketing Loan: How Is It Working?

U.S. rice prices are close to world levels, exports are up, and stocks are lower since the rice marketing loan, mandated by the 1985 Food Security Act, took effect on April 15, 1986. Under the marketing loan, rice producers repay their nonrecourse loans below the loan rate if world prices are below the loan rate. Thus, the marketing loan moves U.S. prices closer to world prices, keeping U.S. rice competitive.

Before the marketing loan was implemented, U.S. rice exports had plunged for 3 years, largely reflecting uncompetitive U.S. prices. Even though U.S. rice prices were historically low, they were still almost twice as high as those of other exporters. The then-current U.S. loan and purchase program was keeping domestic prices high. As a result, further erosion of export markets seemed likely.

Implementation of the marketing loan immediately and dramatically lowered prices to near world levels. Export sales, which account for about 50 percent of use, increased sharply during the remainder of 1985/86 and continued strong through 1986/87. Rice exports for 1986/87 were up 43 percent from 1985/86, and the U.S. share of world trade also increased.

#### U.S. Exports Slow When Domestic Price Increases

In 1987/88, however, U.S. rice exports dropped 14 percent from the year before. U.S. supplies were tighter and domestic demand was up. Strong world demand was expected, and the Thai crop was reduced by drought—leading to expectations that the U.S. would become the

#### How the Marketing Loan Works for Rice

To show how a producer might use the marketing loan, consider the following example. If a producer places his 1988/89-crop rice under loan, he receives an average \$6.63 per cwt. If the world price equals \$4.50 per cwt at the time of repayment, the producer repays his loan at \$4.50 and keeps the difference between \$6.63 and \$4.50. He can now sell his rice on the market.

If he sells his crop for \$4.50 per cwt., he has received a total price of \$6.63 (\$4.50

from the market and \$2.31 from the Government). If he can sell his rice for more than \$4.50 per cwt, he has earned more than the loan rate. This difference between the repayment rate and the price received by the producer from the market is often referred to as a premium.

For 1989-crop rice, producers have the option of receiving a cash payment (loan deficiency) equal to the gain which might be realized by repaying a price support loan. Prior to the 1989 program, producers were required to pledge eligible rice as loan collateral and repay the loan to receive any gain.

major source of world exports. Depletion of U.S. Government stocks added to the upward price pressure.

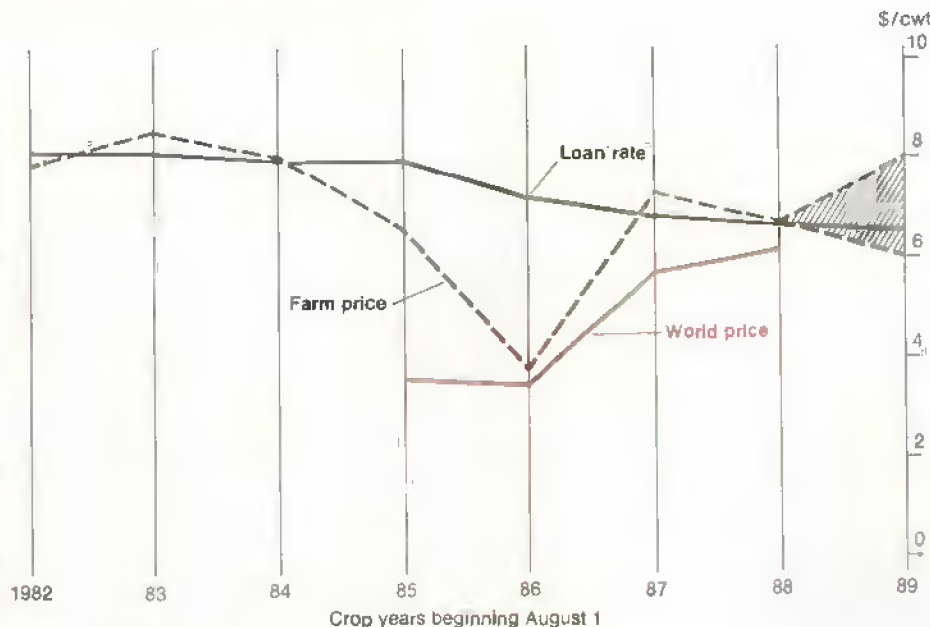
These conditions caused U.S. prices to rise faster than world prices. The spread between the U.S. farm price and the world price surged to \$1.50 per cwt in 1987/88, up from 25 cents a year earlier.

In 1988/89, greater U.S. production and a large second-crop harvest in Thailand caused U.S. prices to weaken, dropping from a monthly average of \$7.42 per cwt in August to \$6.47 in March. While U.S. prices have softened during the last several months, Thai domestic and export prices have risen, narrowing the spread between the U.S. farm price and the world price.

With U.S. prices dropping, producers were in no hurry to redeem their loans. Expectations that world prices would reach a low in December or January when Thailand harvested its main-season crop may have enticed producers to keep their rice under loan until the repayment rate bottomed out. Only 44 percent of 1989 production put under loan was redeemed by the end of January, compared with 99.6 percent in 1987/88 and 97.5 percent in 1986/87.

U.S. exports were sluggish during the first quarter of the 1988/89 marketing year. However, U.S. exports accelerated during the second quarter, and pulled ahead of 1987/88 commitments during the third quarter, as U.S. prices once again became more competitive in the world market.

U.S. Rice Price Adjusts to World Price



1988 and 1989 forecast

The high U.S. premium in 1987/88 and early 1988/89 along with the depletion of Government-held stocks and a slowdown in loan redemptions, may have reduced U.S. exports. Overall, however, the marketing loan has helped to reduce U.S. stocks by making U.S. rice competitive on world markets.

### World Prices Climb

World rice prices have increased over the past 3 years. During the 1986/87 marketing year, prices for long grain rough rice ranged between \$3.44 and \$3.78 per cwt. Prices were low because of abundant world supplies.

World prices were more volatile during 1987/88. During the first 7 months of the marketing year, world prices for long grain rough rice escalated from \$3.80 per cwt to over \$7.00, primarily reflecting a drought-reduced harvest in South and Southeast Asia.

World prices began to weaken in the second half of 1987/88 when import demand slowed and Thailand began to harvest a record dry-season crop. Prices dropped to \$6.07 per cwt in late May, but were still over \$2.00 higher than in early 1987/88.

Uncertainties regarding Asian weather and the wet-season crop may have

strengthened world prices in early 1988/89. When it became obvious that Asian production would be large, world prices began to weaken once again, falling to \$5.90 per cwt by December. However, prices did not drop as low as many expected. Early strong import demand, relatively high wheat prices, and Thai farmers holding back supplies kept world prices firm.

World prices rose in January 1989, reflecting low world stocks and strong import demand, and then started to soar, reaching \$7.05 per cwt in early May. Uncertainties regarding the size of the Thai dry-season crop to be harvested this summer added more instability to the price outlook. U.S. and world wheat supplies are also down, and wheat prices have increased even more than rice, narrowing the rice-to-wheat price spread.

How will U.S. prices respond to this recent surge in world prices? Three years of price behavior under the marketing loan suggest that U.S. cash prices are supported by the world market price. U.S. prices may move well above world prices if U.S. supplies become short and if U.S. price expectations are bullish.

Expected expansion in world and U.S. trade as well as continued strong growth in U.S. domestic use likely will put upward pressure on U.S. prices. Also, U.S.

supplies are projected to increase only slightly in 1989/90. Currently, U.S. farm prices are forecast to range between \$6.50 and \$7.00 per cwt in 1988/89, and between \$6.00 and \$8.00 in 1989/90. This compares with \$7.27 in 1987/88 and \$3.75 in 1986/87. [Janet Livezey (202) 786-1840]

### Apple Prices Depressed Following Alar Scare

U.S. fresh apple shipments have returned to near normal, but prices remain depressed in some areas following February and March events that raised consumer fears about the safety of apples and fresh fruit in general. Newspaper, radio, and television coverage in late February about the use of Alar on apples affected the market.

Alar, the trade name for the chemical daminozide, is used on apples as a growth regulator to prevent preharvest fruit drop, delay fruit maturity and internal decay, and help maintain firmness.

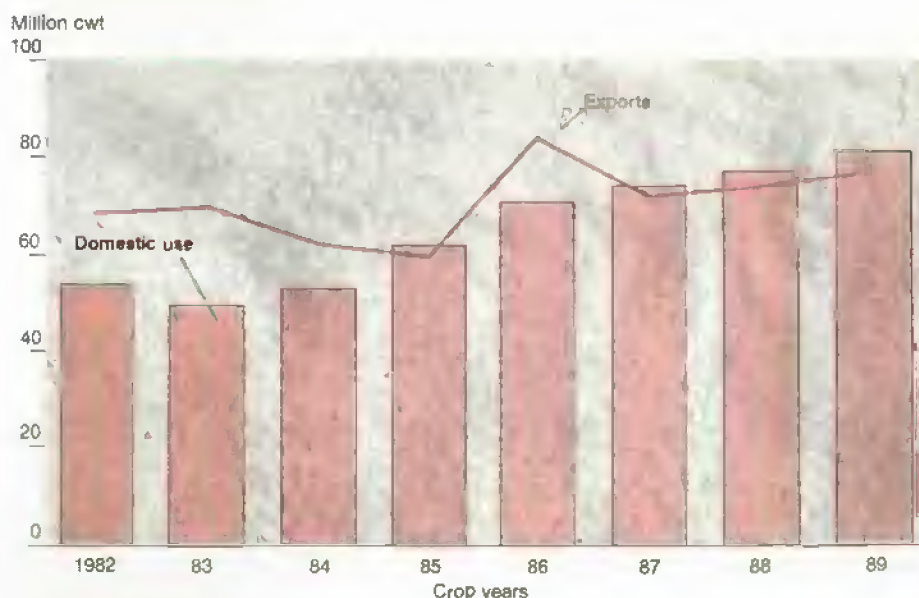
Consumer fears were heightened when cyanide was discovered on two Chilean grapes in mid-March, and the Food and Drug Administration halted imports of Chilean fruit (see the April *Agricultural Outlook*).

### Media Coverage Begins In Late February

Concerns about the cancer risks of Alar on apples and apple products (especially for children) intensified in late February and March. Public school officials in New York City, Los Angeles, and several other areas announced that apples and apple products were being removed from school lunch menus. Although apple items are now back on the menus, the debate over the media reports continues, and the apple industry has stepped up its advertising to moderate the impact of the media coverage.

Apples are widely produced across the U.S., but in 1988 five States accounted for over 70 percent of the total crop: Washington, 41.6 percent; New York, 10 percent; Michigan, 9 percent; California, 6.2 percent; and Pennsylvania, 5.6 percent. The 1986 Washington tree census indicated that 85 percent of the apple

U.S. Rice Exports and Domestic Use Improve Under 1985 Farm Bill

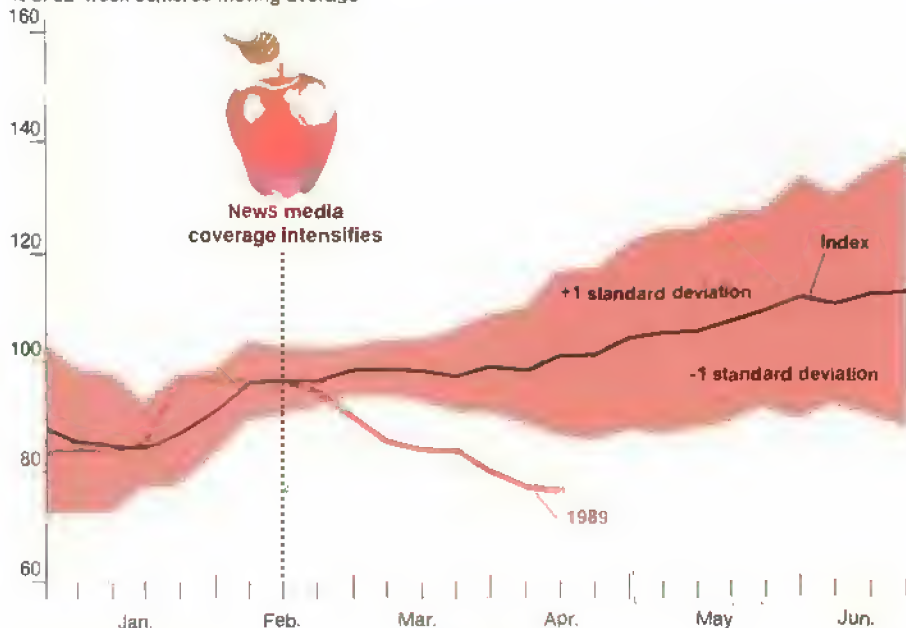


1988 and 1989 forecast.



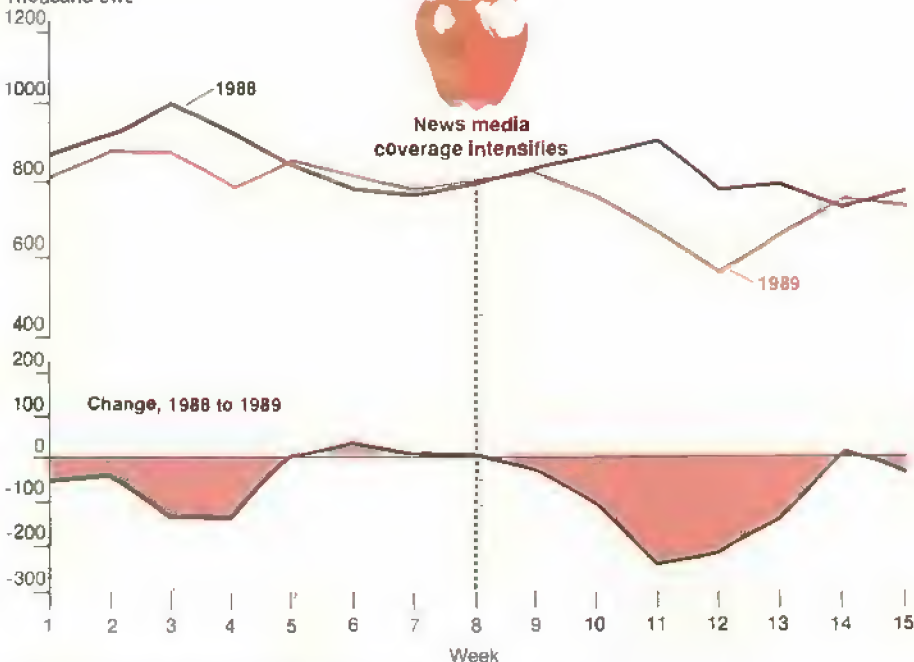
## Alar Publicity Devastated Apple Prices...

% of 52-week centered moving average



## ...And Hurt Shipments

Thousand cwt.



Index is 1983-88 average Weeks begin Jan. 8.

acreage in the State was red delicious varieties. So, Washington red delicious apples represent about 35 percent of the U.S. apple crop.

## Biggest Impact on Red Delicious Apples

Regional prices indicate that red delicious markets may have been most affected by the media coverage. The

Washington shipping-point price for extra fancy red delicious apples was about 20 percent lower for the week ending April 21 than for the week ending February 24.

However, red delicious apple prices also declined 12 percent in the Appalachian region and 9 percent in Michigan. New York McIntosh apple prices in the Lake

Champlain region remained about the same, while Michigan McIntosh prices rose over 5 percent. Granny Smith prices remained strong.

## Prices Usually Rise From Late February to Early September

Comparing shipping-point prices before and after the Alar publicity with the usual seasonal price pattern indicates a greater-than-expected drop. A weekly seasonal index of shipping-point prices was estimated in ERS by removing trend, cyclical, and irregular price changes for January 1983-March 1989. The index shows the usual price movement through the year.

Washington red delicious prices usually drop rapidly at the beginning of the harvest season in late September, and stay relatively low through January. From early February through July, prices rise and then remain high until the next harvest season in September. A "band of irregularity," drawn about the index on the accompanying graph, indicates the general confidence in the seasonal price pattern; the actual price is expected to be within the band two-thirds of the time.

## Prices Drop Sharply After Media Coverage

Actual weekly prices show a sharp drop at the time of the news media coverage on Alar. Prior to late February, the actual f.o.b. price for red delicious apples closely followed the seasonal index, and was well within the band of irregularity. However, after late February, the weekly price dropped, while the index suggested that the price should remain firm or show some strength.

The price dropped below the band of irregularity by the week of March 10, and kept falling even further below the band through the third week in April. The media publicity apparently was an important factor in the declining red delicious prices.

## Shipments Decline, Then Recover

Fresh shipments of U.S. apples had been running about the same as the year before during the 4 weeks preceding the

media coverage on Alar. During the following 5 weeks, total fresh shipments dropped 16 percent, or 680,000 cwt below the previous year.

Shipments recovered to year-earlier levels for the week beginning April 9. Apples were again moving, but at substantially lower prices. For Washington State, fresh apple shipments dropped about 11 percent from the previous year for the 5-week period following the media coverage, then recovered somewhat, but were still running about 4 percent behind last year during April 9-May 6.

#### **Nine-Week Losses in Washington About \$23.4 Million**

Prices for processing apples in Washington did not decline after the news media coverage on Alar, so the impact was primarily on the fresh market. If the fresh price per 42.5-pound tray pack of extra fancy Washington red delicious apples had followed the usual seasonal pattern after late February, it would have been about \$4.14 higher than it actually was during the week of April 23-29. For the 9 weeks after prices fell sharply, prices averaged about \$2.39 below the usual seasonal pattern.

The loss for the fresh Washington red delicious apple industry for the first 9 weeks after the media coverage is estimated at \$23.4 million, based on the deviation of actual price from the expected price. The loss will continue to grow each week that prices remain below what they otherwise would have been.

#### **Outlook Somber**

The Environmental Protection Agency (EPA) has increased its estimate of the proportion of apples treated with Alar. EPA has decided to ban Alar, having found it to pose a significant health risk over a lifetime of exposure.

Apple prices likely will remain below their usual seasonal levels for the foreseeable future as negative media publicity about Alar continues. Continued lower prices will cause the Washington fresh apple industry's losses to far exceed the \$23.4 million estimated here for the 9-week period following the price drop in February. [Boyd M. Buxton (202) 786-1885]



## **World Agriculture and Trade**

### **Growth in Nitrogenous Fertilizer Trade Slowing**

Production and exports of nitrogenous fertilizer were concentrated in the developed economies 20 years ago, but are now becoming more important to the developing economies. Traditional producers and exporters of nitrogenous fertilizer, such as Western Europe and the U.S., have lost market share despite rising production.

World production of nitrogenous fertilizers increased from 23.1 million metric tons (mmt) in 1966 to 75.6 mmt in 1986. The developed economies' production share has eroded from 87 percent in 1966 to 62 percent, although their production grew.

The decrease in share is acute in Western Europe, whose share fell from 31 percent to 15 percent over the 20 years. North America's share declined from 26 percent to 16 percent. But Asia's market share almost doubled between 1966 and 1986, and the remaining major producing area, Eastern Europe, increased its share from 22 to 29 percent.

In 1966, the four major nitrogenous fertilizer-producing countries were the U.S., USSR, People's Republic of China (PRC), and Federal Republic of Germany (FRG). By 1986, India had replaced the FRG as the fourth largest

producer. U.S. production increased from 5.5 mmt in 1966 to 9.5 mmt in 1986, but the U.S. share declined from 24 to 13 percent. The USSR increased production from 3.2 mmt in 1966 to 15.0 mmt in 1986, and increased its share from 14 to 20 percent.

#### **World Trade Tripled**

World trade in nitrogenous fertilizers more than tripled, from 4.9 mmt in 1966 to 17.4 mmt in 1986. Even so, the percentage of production exported remained relatively stable, between 21 and 23 percent. The developed market economies still account for most world trade, but growth in exports has been stronger outside the developed market economies. The developing economies increased their share of world exports from 5 percent in 1966 to 20 percent in 1986.

In 1966, the leading exporters of nitrogenous fertilizers were: India (19 percent of the world export market), the U.S. (14 percent), the FRG (12 percent), Italy (9 percent), and the Netherlands (8 percent). In 1986, the U.S. led (over 14 percent), followed by the USSR (nearly 14 percent), Canada (9 percent), the Netherlands (9 percent), and Romania (7 percent).

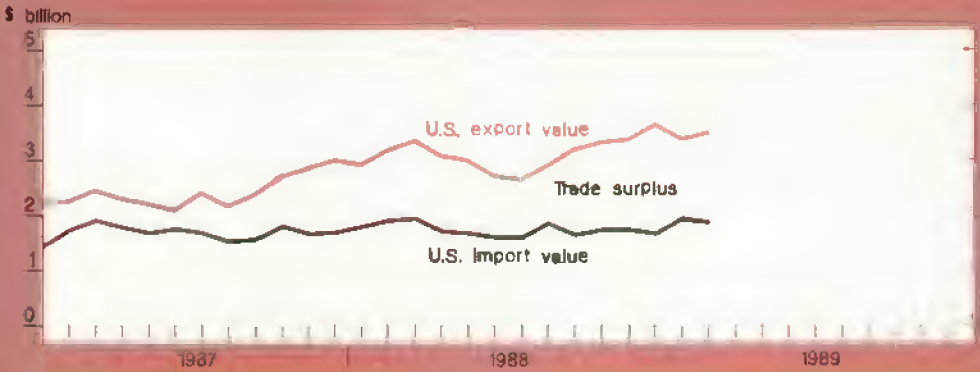
The five leading exporters accounted for half of total exports in 1986. During the late 1970's and early 1980's, the USSR emerged as an important exporter, while the U.S. share fell. In 1986, the U.S., the PRC, and France accounted for 40 percent of world imports.

Exports accounted for 26 percent of U.S. nitrogenous fertilizer production in 1986. U.S. exports increased steadily from 1966 until 1980, and then declined in the early 1980's. The U.S. imports large quantities of ammonia, which is processed and exported as ammonium phosphate, primarily to India, Korea, and Belgium-Luxembourg. The U.S. imports ammonia, urea, and nitrogenous fertilizers from Canada and the USSR.

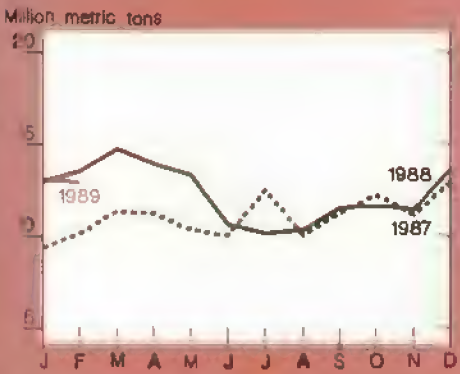
Growth in U.S. production and export of nitrogenous fertilizers is attributed to increases in world crop area and in fertilizer application rates, caused partly by higher yielding crop varieties.



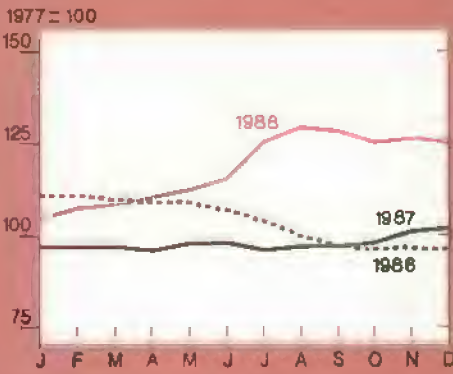
U.S. agricultural trade balance



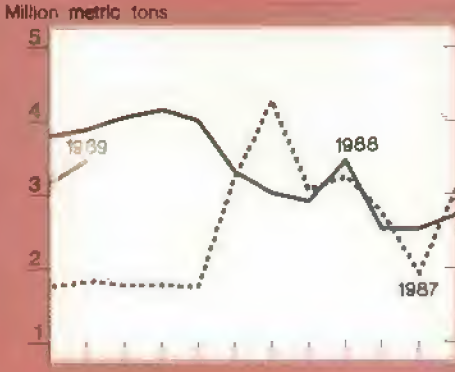
Export volume



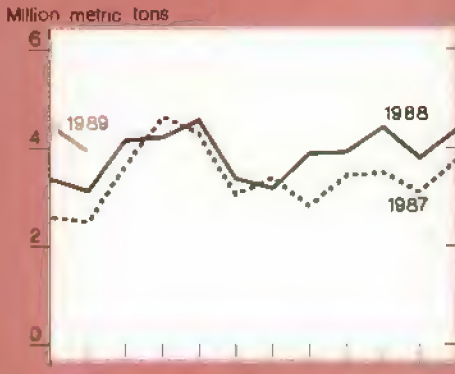
Index of export prices



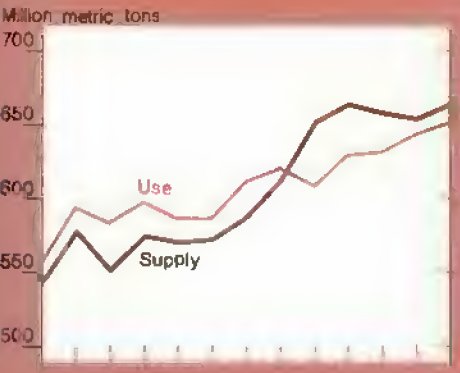
U.S. wheat exports



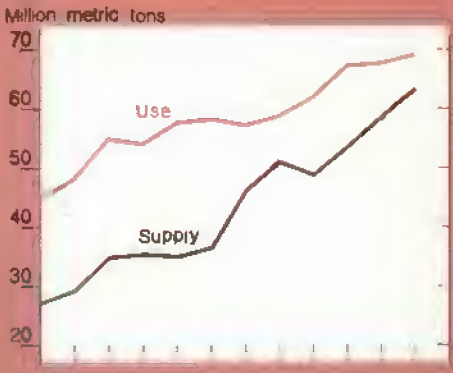
U.S. corn exports



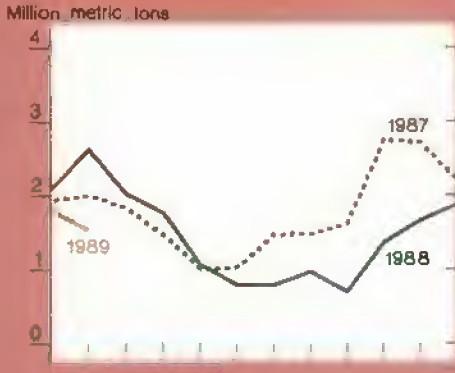
Foreign supply & use of coarse grains



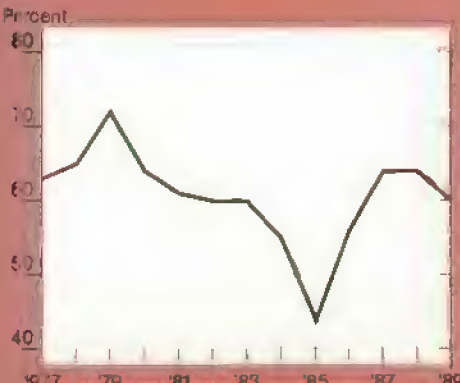
Foreign supply & use of soybeans



U.S. soybean exports



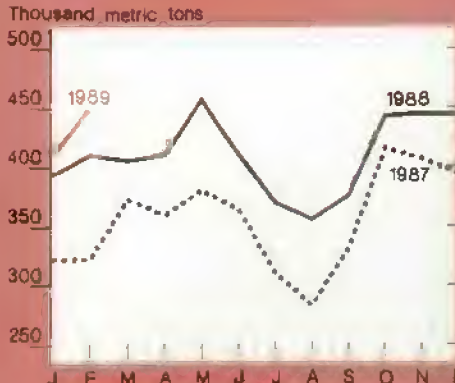
U.S. share of world coarse grains exports<sup>1,2</sup>



U.S. share of world soybean exports<sup>1,2</sup>



U.S. fruit & vegetable exports<sup>3</sup>



<sup>1</sup>Excluding intra-EC trade    <sup>2</sup>October-September years.    <sup>3</sup>Includes fruit juices.

## Subsidies Affect Use

Agricultural programs and subsidies affect fertilizer demand. For example, in the U.S., acreage reduction program requirements have somewhat offsetting effects on demand. By cutting acreage, the program reduces fertilizer demand. But the program requirements can induce intensive farming practices, including higher fertilizer application rates, on acres remaining in production.

In some developing economies, fertilizer use is subsidized to encourage farmers to increase output, while domestic production benefits from industrial and trade policies that exclude imported nutrients. The growth in fertilizer production in developing countries also reflects an increase in domestic demand and greater foreign demand for low-cost fertilizers.

Low-cost nitrogenous fertilizer production generally requires access to low-cost natural gas. Nitrogenous fertilizers are manufactured from ammonia, which is derived from a variety of hydrocarbons, particularly natural gas.

Countries with large supplies of gas and rapidly increasing nitrogenous fertilizer production include Canada, the USSR, Mexico, and India. The USSR, currently the world's largest fertilizer producer and a major exporter, has increased natural gas production fourfold since 1966 and is believed to hold 43 percent of the world's proven reserves.

Another important determinant of nitrogenous fertilizer production is investment costs. For some countries, growth in fertilizer production can be attributed to subsidized investment. Low-cost production in some countries is sustained by energy-efficient production plants.

Energy policy in the U.S. is a major determinant of fertilizer prices, production, and trade. For example, the price of natural gas was regulated in the U.S. during 1954-1978. By the early 1980's, fertilizer producers were affected both by deregulation and by higher natural gas prices. U.S. producers' ability to pass on price increases was limited by foreign competition.

## Developing Economies' Nitrogenous Fertilizer Production and Exports Are Growing

	1966		1986	
	Volume	Share 1/	Volume	Share 1/
<b>Production</b>	Metric tons	Percent	Metric tons	Percent
World	23,070,224		75,564,672	
North America	6,023,906	26	12,015,500	16
Western Europe	7,132,507	31	11,041,773	15
South America	235,933	1	1,277,258	2
Eastern Europe	4,973,826	22	21,858,464	29
Asia	4,184,117	18	25,748,624	34
Africa	240,300	1	1,684,900	2
Oceania	44,000	0	255,100	0
Developed countries	20,065,328	87	46,640,848	62
Developing countries	3,004,899	13	28,923,824	38
<b>Exports</b>				
World	4,915,553		17,443,312	
North America	867,305	18	4,005,000	23
Western Europe	2,650,738	54	4,803,202	28
South America	140,032	3	207,486	1
Eastern Europe	235,878	5	4,825,906	28
Asia	970,468	20	2,865,032	16
Africa	1,000	0	432,915	2
Oceania	0	0	35,100	0
Developed countries	4,685,986	95	13,939,908	80
Developing countries	229,567	5	3,503,410	20

1/ Shares were rounded to the nearest 1 percent.

Source: FAO Fertilizer Yearbook, various issues.

## Industry Faced Two Recessions

The fertilizer industry experienced two serious recessions. In 1975, following the commodity-price boom of the early 1970's, fertilizer prices increased rapidly, resulting in excess production and depressed demand. In the early 1980's, a global recession and acreage reduction policies in the U.S. combined to further weaken the industry. Reduced nitrogenous fertilizer production in developed market economies is not expected to change in the near future.

From 1987 to 1990, ammonia production capacity, an indicator of nitrogenous fertilizer production, is expected to increase by only 2.3 mmt of nitrogen in the developed market economies. In centrally planned and developing market economies, ammonia capacity is expected to increase by only 9.1 mmt. This slow growth is attributable to expected slow growth in fertilizer demand and relatively high energy costs. [Margot Anderson (202) 786-1405]

## Upcoming Economic Reports

Summary Released	Title
June	
12	World Ag. Supply & Demand
15	Sugar & Sweeteners Yearbook Western Europe
16	Tobacco
20	Agricultural Outlook
21	Agricultural Resources
23	Livestock & Poultry Update Foreign Ag. Trade Update
26	World Ag. Special Issue



## Demand Increasing in The Soviet Union

The Soviet Union is entering a new economic period as General Secretary Gorbachev pushes restructuring and modernization. Several factors, including some of Gorbachev's reforms, are increasing Soviet demand for grain and protein feed. Inflationary pressures are building in the USSR, due in large part to an enormous budget deficit. Rising incomes are stimulating consumer demand, a large share of which is for food. The state has repressed inflation by postponing plans to increase retail prices.

The result has been growing market imbalances and more rationing, particularly of food. Without an effective means of dampening demand, supplies of meat, butter, and other consumer goods will have to increase rapidly in the next 3 to 4 years to prevent greater shortages.

### Large Inflationary Pressures Building

Large budget deficits in the last few years have increased Soviet inflationary pressures. In the U.S., a Federal budget deficit of 3 to 4 percent of GNP is considered large. The USSR's deficit was 7 to 9 percent of GNP in 1988, and probably will increase to around 11 percent this year.

In recent years, Soviet expenditures for capital construction and social programs have increased. At the same time, budget revenue from some sources has declined, through a reduction in the turnover (sales) tax on alcoholic beverages, a reduction in tariff revenues on imported consumer goods, and lower world oil prices. The Soviet budget deficit is being financed primarily by money creation, with direct inflationary impacts.

In 1988, growth in wages outpaced growth in labor productivity by 7 percent to 5.1 percent, adding to inflationary pressures. Since the output data themselves are often inflated, actual productivity was likely less than reported, so the gap was even larger. And in the first quarter of 1989, the gap widened.

### Holding the Line on Retail Price Increases

When growth in nominal incomes outpaces growth in output, consumer prices usually rise. But the state, which controls nearly all prices in the USSR, has held the line. An overhaul of retail prices was to be implemented by 1991, but has been postponed indefinitely.

After more than two decades of growing incomes and generally stable prices, excess demand for many commodities has become substantial. The Soviets estimate that demand for meat is as much as 30 to 35 percent above supply. For food as a whole, the excess is roughly 15 percent of retail sales.

Because nonfood consumer goods are not available in adequate quantity and quality, and the service sector is underdeveloped, higher incomes have a strong impact on the demand for food.

Substantial increases in retail prices likely would be required to equalize supply and demand. Recent inflationary experience in neighboring countries such as China, Poland, and Hungary, where reform has led to an inflationary spiral, shows the difficulties facing Soviet economic planners.

While policymakers work on a strategy for dealing with supply-demand imbalances, those imbalances widen, making the policymakers even more reluctant to go forward with price increases. Formal rationing programs have become common in many parts of the USSR, even though supplies of most consumer goods continue to increase.

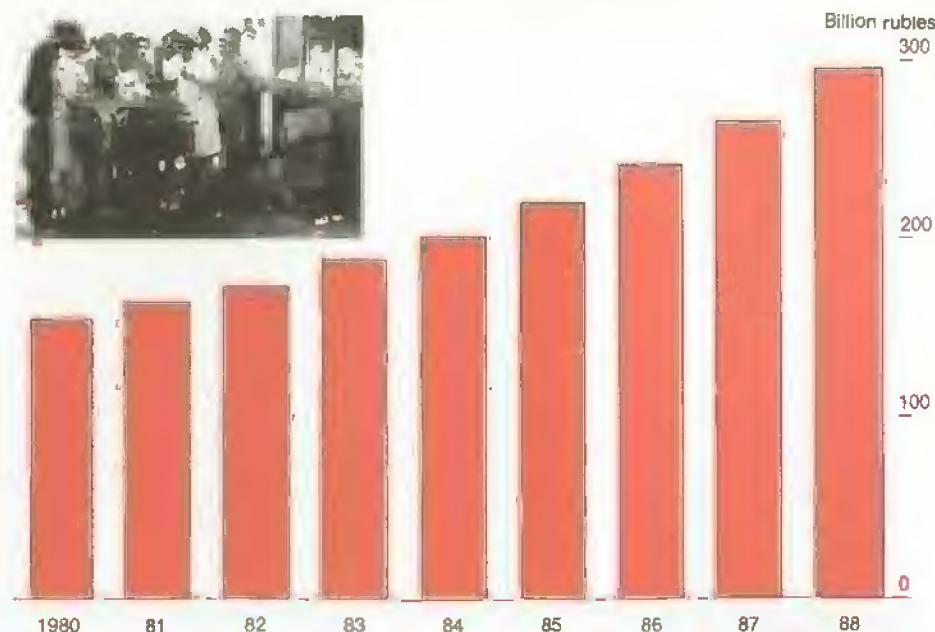
Meat consumption per capita has increased roughly 1.5 percent per year during the 4 Gorbachev years. Per capita consumption of milk products has increased by 2.5 percent per year. However, supply increases likely will have to be much higher than this, probably 5 percent per year or more, to keep imbalances for meat and butter from getting worse.

### What Is Being Done?

The state is pursuing a number of policies, short of major price increases, to absorb excess disposable income. It is shifting more investment resources out of heavy industry, the traditional bastion of the Soviet economy, and into consumer goods industries. The service sector is also receiving more attention.

There has been discussion of higher personal income tax rates, and of opening

Soviet Savings Deposits a Barometer of Suppressed Inflation



up new investment opportunities for individuals. Traditionally, the only investment option for Soviet citizens has been deposits in the State Savings Bank. Local experiments are introducing the sale of stocks and bonds as a new means of enterprise finance.

Reforms may cut budgetary expenditures. Defense expenditures are to be lowered, and other state-financed investments are coming under scrutiny. However, pressure remains to increase social spending in areas such as health care, housing, and environmental protection.

Moreover, the state budget is supporting enterprises to ease their adjustment to economic reforms. Paradoxically, the state is using inflationary measures to make it easier for inefficient firms to survive new self-financing requirements that might otherwise force them into bankruptcy.

The Government plan is to defer price increases until supplies of consumer goods are adequate—but no steps short of a price increase can be expected to make more than a small dent in excess demand.

#### *Impact on Trade Likely*

To maintain public support for economic reforms, popular perception of improving living standards is necessary. This will be difficult. Meat production must increase rapidly, and this expansion will contribute to greater feed demand—and possibly greater feed imports—in coming years.

Without the kind of bin-busting crop not seen in the USSR since 1978, annual Soviet grain imports are not expected to fall much below 30 million tons during the next 3 to 4 years, and could easily exceed the 32-million-ton average of 1985/86-1988/89, Gorbachev's first 4 years as general secretary.

There are good reasons to expect further growth in oilseed meal imports. Soviet mixed feeds remain woefully short of protein, despite large increases in protein feed imports. With pressures to increase meat production, further increases in protein imports are a likely strategy.

[Edward C. Cook (202) 786-1625]



## Farm Finance

### Farm Credit Recovery Continues

The Farm Credit System (FCS), commercial banks, and life insurance companies are recovering rapidly from the financial problems of just 2 years ago, thanks largely to the improving farm economy. The Farmers Home Administration (FmHA), however, still has a highly stressed farm loan portfolio.

Some industry observers had feared that the farm financial recovery would be slowed by last summer's drought, but 1988 yearend lender data say otherwise. However, since many farm loan payments are made in winter, some drought-related effects could show up in 1989.

#### *Loan Delinquencies Plunge*

Loan delinquencies for the major farm lenders plunged during 1988, except for the FmHA. Delinquent FCS loans dropped \$2 billion, to half the level of 2 years ago. Life insurance companies reported a drop of \$500 million in farm real estate loan delinquencies. For commercial banks, both delinquency rates and net loan charge-offs on non-real-estate farm loans have declined to levels of the early 1980's.

If farm loan quality continues to improve at last year's pace, by 1990 farm loans will be near the quality seen before the farm financial stress began in the early 1980's.

The improving financial strength of farmers and their lenders is also evident in reduced loan restructuring. Most lenders reported that fewer loans underwent restructuring in 1988. For the FCS, the number dropped by half.

Farmers' use of Chapter 12 bankruptcy also fell sharply in 1988. Chapter 12 filings last year totaled 2,035, far below the 6,604 of 1987. The farm bankruptcy law enhances farmers' ability to restructure debt and continue farming.

#### *Loan Volume Stabilizing*

Combined farm loan volume reported by the four major farm lenders for yearend 1988 was down only \$1.4 billion from 1987. This is in sharp contrast to the previous 3 years, when volume dropped sharply.

Commercial bank farm loan volume continued to rise in 1988, with \$45 billion outstanding at yearend, nearly 4 percent more than a year earlier. Banks are continuing to gain market share, and now hold the greatest proportion of farm debt.

The FCS (including the Banks for Cooperatives), which experienced a \$30-billion loan paydown during 1983-87, reported a paydown of only \$1.1 billion for 1988. Life insurance companies' yearend volume was down less than 2 percent from last year, and fourth-quarter 1988 loan volume was up—the first quarterly increase since 1980.

However, FmHA's farm loan volume, which had been relatively stable, declined by \$1.8 billion last year, as the agency recognized accumulated loan losses and experienced a decline in new lending.

#### *Private Lenders' Health Improves*

Agricultural commercial banks continued their quick and widespread return to health during 1988, showing their best performance in 5 years. Measures of 1988 bank profitability, such as return on equity and return on assets, were the highest since 1983. The number of agricultural banks vulnerable to failure, and those actually failing, dropped sharply. For the first 3 months of 1989, only three agricultural banks failed, the lowest quarterly figure in 5 years.



The FCS's net-income rose to \$704 million, compared with a net loss of \$17 million in 1987. However, reductions in loan loss reserves and gains from the sale of acquired property explain much of the rise. Cash set aside to cover anticipated loan losses was taken out of the reserve fund and added to income, because FCS management believed that the improving farm economy would cut future losses.

But the FCS is still having problems generating income. These gains from accounting changes and sales of acquired property will not be available indefinitely. The FCS needs to accumulate income to meet stricter capital requirements in the early 1990's. Some improvement in net interest income was evident in 1988, as some nonaccrual loans were restored to performing status.

The FCS will continue to consolidate its operations. In 1988, the 37 FCS banks consolidated into 15, and the number of FCS associations slimmed to just 281,

down from 377. Further consolidation will come more slowly; a stockholder vote on mergers of the remaining district banks is required in mid-1989, but seems likely to be delayed.

By merging, the FCS banks may be able to operate more efficiently, thereby lowering interest rates to farm customers. The FCS is seeking guidance from the Farm Credit Administration, its regulator, on expanding financial services into new areas such as brokerage services and credit cards.

In contrast to the other lenders, FmHA's portfolio continues to be highly stressed. In February, 41 percent of outstanding loans were delinquent. However, much of the rise is attributable to reduced loan volume; the dollar amount of delinquencies changed little from last year.

FmHA delinquencies are highest during the winter because many annual payments come due at yearend. Some borrowers catch up on late payments by

summer. As FmHA works through the debt restructuring programs required by the Agricultural Credit Act of 1987, its delinquency rate should fall.

### *Competition Remains Keen, Although Interest Rates Rise*

Lenders are competing keenly for good-quality farm loans. This benefits farmers by holding credit costs down. But because of the economy-wide increase in interest rates, farmers faced rising interest rates in 1988 and into early 1989.

A Federal Reserve Board survey indicated that the average rate on commercial bank non-real-estate farm loans was 11.2 percent in 1988, up from 10.6 in 1987. The comparable rate for the first 3 months of 1989 was 12.3 percent. The rise reverses a 6-year downward trend.

Lenders are willing and able to write new farm loans. Commercial banks' loan-to-deposit ratios inched up at yearend, but surveys indicate that bankers still have far fewer farm loans on their books than they deem optimal. Insurance companies' attitudes vary; some are aggressively seeking new business, others are not. The FCS, on the mend from its financial perils, is actively seeking loans.

Despite the strong farm financial recovery, lenders are concerned about the long-term profitability of farm operations, and farmers' ability to repay loans. Increasing competition for agricultural exports and reduced Government support could erode farmers' profitability.

Other issues looming on the horizon for the 1990's are on the minds of lenders, such as potential liabilities from groundwater contamination. This could devalue collateral for farm loans; lenders are worried that some of the liabilities could be transferred to them.

Some farm lenders are eagerly awaiting the startup of Farmer Mac, the new secondary market for farm mortgages. The Farmer Mac board plans to submit its proposed loan underwriting and operating standards to Congress for required review this month. Once Congress and the public have commented on these critical standards, market operations can begin, likely in 1990. *(Steve Koenig, Doug Duncan, Merriut Hughes, and Jerry Stam (202) 786-1893)*

Except for FmHA, Farm Lenders Are Rebounding

Lender and date	Delinquent farm loans 1/		Net farm loan charge-offs		Value of acquired properties 4/
	\$ mil.	Percent 2/	\$ mil.	Percent 3/	\$ mil.
<b>FCS</b>					
12/31/84 5/	5,689	8.7	428	0.5	496
12/31/85	6,465	9.7	1,105	1.4	928
12/31/86	8,137	14.9	1,321	1.9	1,093
12/31/87	5,749	11.6	488	0.8	873
12/31/88	3,757	7.3	413	0.8	661
<b>FmHA 6/</b>					
12/31/84	8,116	32.4	117	0.5	na
12/31/85	8,464	31.9	234	0.9	695
12/31/86	8,457	32.3	379	1.4	831
2/1/88	9,619	37.6	1,119	4.1	657 7/
2/1/89	9,666	40.7	2,022	7.8	645
<b>Comm. banks 8/</b>					
12/31/84	2,100	5.2	900	2.3	na
12/31/85	2,600	7.3	1,300	3.3	na
12/31/86	2,200	7.0	1,200	3.4	414
12/31/87	1,509	5.2	535 9/	1.7	438
12/31/88	911	3.1	140	0.5	400
<b>Insurance companies</b>					
12/31/84	1,167	9.6	na	na	na
12/31/85	1,717	15.1	na	na	692
12/31/86	1,783	17.0	na	na	1,442
12/31/87	1,330	14.3	na	na	1,619
12/31/88	808	8.9	na	na	1,226

na = not available. 1/ For commercial banks and FCS, includes loans past due 90 days or more and still accruing interest, plus loans in nonaccrual status. For FmHA, includes only principal and interest payments more than 15 days past due. For insurance companies, loans past due 90 days or more plus those in the process of foreclosure. 2/ As a percentage of all such loans held at the end of the period. 3/ As a percentage of all such loans held at the beginning of the period. 4/ Excludes property held by the Banks for Cooperatives. 5/ 1984 figures are not directly comparable since this was a transition year in changing to new accounting practices. 6/ Includes only data for Farmer Loan Programs. Loan charge-offs are for fiscal 1984-88. 7/ Decrease from previous period may reflect changes in reporting procedures. 8/ Estimates for bank-held farm non-real-estate loans. 9/ For 12/87 and 12/88, value does not include deferred loan losses.



## General Economy

### Second-Half Inflation Could Be Lower

The Federal Reserve's tightening of the money supply has been successful in slowing the economy and reducing demand pressures, so further tightening seems unlikely. This points to falling interest rates in the second half of 1989 and to real GNP growth of 2.5 to 3 percent.

Much of the apparent worsening in inflation has come from increases in food and oil prices. These could reverse direction in second-half 1989, and so lower inflation. On an annualized basis, the underlying inflation rate is likely to average 4-4.5 percent during the last 6 months of the year.

Falling interest rates, lower inflation, and domestic personal income growth of 6.5-7.5 percent suggest a general economic environment that is mildly supportive of U.S. agriculture.

#### Higher Interest Rates Slowed Economy

Rapid growth in late 1987 and the first half of 1988 pushed industrial capacity use to a peak and brought steady declines in the unemployment rate. But as 1988 progressed, the Federal Reserve became increasingly concerned that the economy was growing too quickly and that infla-

Inventory Change and Drought Loss Fuzz Relationship Between GNP and Demand

	1987 year	1988 qtr. I	1988 qtr. II	1988 qtr. III	1988 qtr. IV	1989 qtr. I
- - - Percent - - -						
Annual growth rates						
Real GNP	3.4	3.4	3.0	2.5	2.4	5.5
Real demand	3.8	5.7	4.7	3.4	4.1	2.6

tion would rise. So the Fed pushed up interest rates, which increased about 2.5 percentage points during 1988. The Federal Reserve hoped to slow real GNP growth to between 2.5 and 3 percent, a rate considered to be consistent with steady inflation.

The higher interest rates seen in the second half of 1988 are slowing the economy now, and probably will continue to do so for the next few quarters. A slower-growing economy with lower inflation could depress interest rates, perhaps as early as the second half of 1989. Lower interest rates would exert downward pressure on the value of the dollar, which could boost exports by the end of the year.

This probable chain of events could be snapped, however, by a continued runup in crude oil prices, another drought, or perhaps more importantly, a round of protectionist actions and retaliations. Protectionism has become more probable as the Government begins to comply with the provisions of last year's Omnibus Trade Act, which requires at least identifying those countries with significant barriers to U.S. trade and investment.

#### Interpreting the Statistics Is Tricky

First-quarter statistics on GNP growth and inflation obscure more than they reveal about underlying economic trends. Real GNP grew at an annual 5.5-percent rate in the first quarter, substantially above any quarterly rate in 1988. At first glance, this suggests rapid economic growth. However, about 2.5 percentage points of that increase was due to the low fourth-quarter real GNP, which incor-

porated about half the estimated production losses from the 1988 drought.

A clearer picture of overall demand emerges when consumer spending, business spending on plant and equipment, foreign purchases of U.S. products, and Government purchases are added together. This measure attempts to exclude the distorting effects of the drought and nonfarm inventory changes.

By this measure, overall demand grew nearly 6 percent—about 2.5 percentage points faster than real GNP—in the first quarter of 1989. But in the first quarter of 1989, while GNP grew 5.5 percent, overall demand grew 2.6 percent—within the Fed's targeted range for a steady-inflation economy.

Over the next year, real GNP growth is likely to be led by continued gains in exports and business investment spending. Inflation-adjusted exports in the first quarter of 1989 were 10 percent ahead of the first quarter of 1988—despite the nearly 5-percent appreciation in the trade-weighted value of the dollar.

The outlook for business plant and equipment spending for all of 1989 remains good. A Census Bureau survey of intended business capital spending in the first quarter suggested that real spending would rise about 6 percent in 1989. This is lower than the 10-percent increase in 1988, but still well above the 2 percent reported in 1987.

#### Inflation Quirky

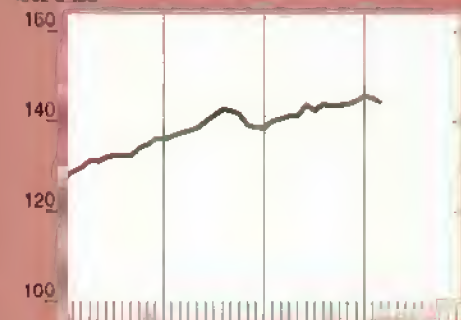
Recent inflation statistics reflect unusual developments that tend to overstate the underlying inflation rate. In the first quarter of 1989, consumer prices rose at a 6.1-percent annual rate, the biggest quarterly rise in 5 years. But energy



# General Economic Indicators

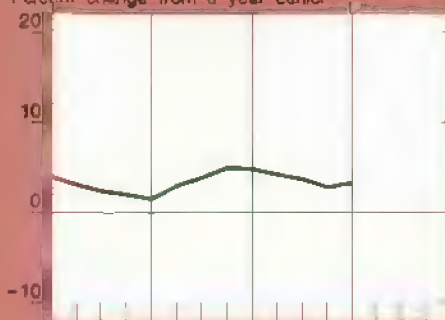
Composite leading economic indicators

1982 = 100



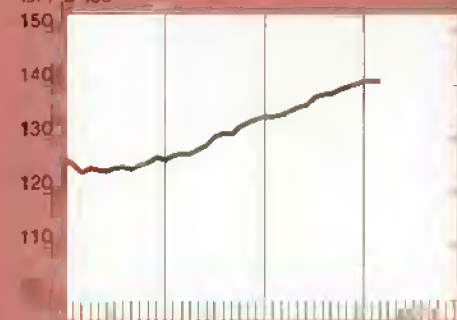
Gross national product<sup>1</sup>

Percent change from a year earlier



Industrial production

1977 = 100



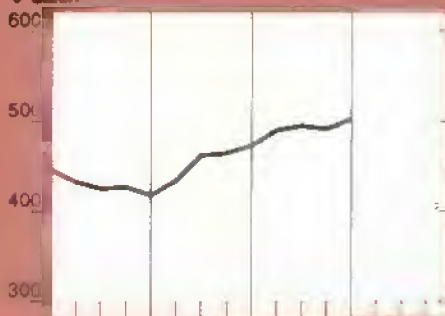
Disposable income and consumption expenditures<sup>2</sup>

\$ billion



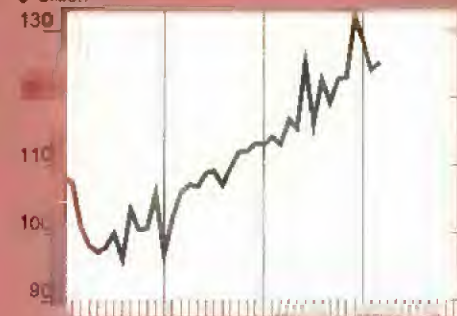
Nonresidential fixed investment<sup>2</sup>

\$ billion



Manufacturers' durable goods orders<sup>3</sup>

\$ billion



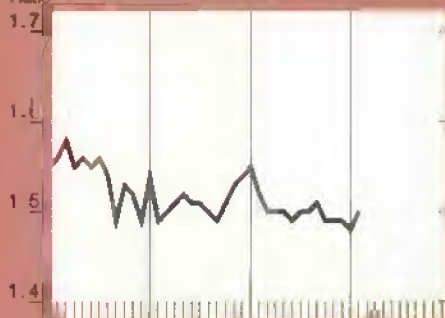
Consumer price index

Percent change from a year earlier



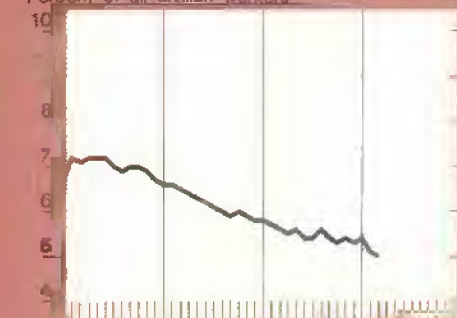
Inventory/sales<sup>4</sup>

Ratio



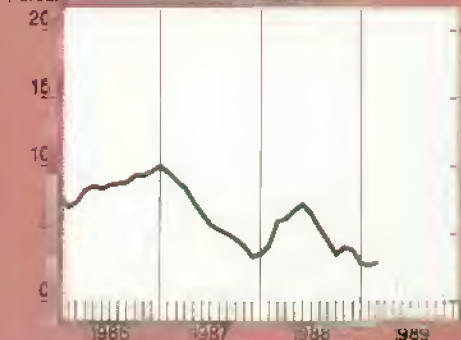
Unemployment rate<sup>5</sup>

Percent of all civilian workers



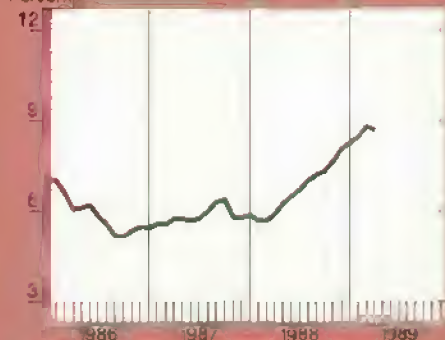
Money supply (M2)

Percent change from a year earlier



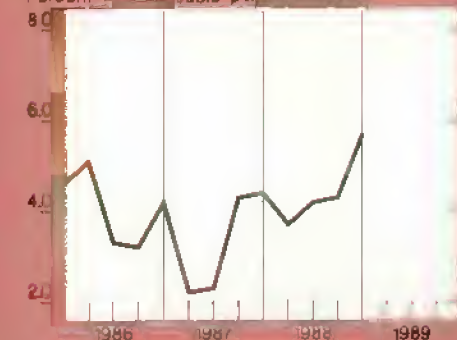
3-month Treasury bill rate

Percent



Savings rate<sup>6</sup>

Percent of disposable personal income



<sup>1</sup>Percent change from a year earlier in 1982 dollars. <sup>2</sup>Seasonally adjusted annual rates. <sup>3</sup>Billions of 1982 dollars, seasonally adjusted at annual rates.

<sup>4</sup>Nominal dollars. <sup>5</sup>Manufacturing and trade, seasonally adjusted, based on 1982 dollar. <sup>6</sup>Seasonally adjusted.

<sup>7</sup>Calculated from disposition of personal income in 1982 dollars, seasonally adjusted at annual rates.

Sources: U.S. Dept. of Commerce, U.S. Dept. of Labor, and the Board of Governors of the Federal Reserve System.

prices rose 10.2 percent in the first quarter, and food prices rose at an 8.6-percent annual rate. This compares with annual 1988 increases of 0.8 percent in energy prices and 4.1 percent in food prices.

To the extent that the crude oil price runup, which has driven the energy price rise, is unlikely to continue, energy price inflation could slow substantially over the next few quarters. This would pull down overall inflation. By April, crude oil prices were hovering around \$20 per barrel, up from about \$13 in October 1988; many analysts expect crude oil prices to fall later in 1989.

When energy and food prices are excluded from the consumer price index, inflation averaged 4.7 percent in 1988 and 5.2 percent in the first quarter of 1989—close to the 4.2-percent annual average during 1982-87.

Even though the measure of the underlying inflation rate excludes the direct effect of energy and food prices, it includes the indirect effects that those rising prices have on other goods. So even this measure overstates what inflation would have been without the rapid increases in energy and food prices. [Ralph Monaco (202) 786-1782]



## Resources

### Rise in Land Values Continues

U.S. farmland values averaged 6 percent above a year earlier in February 1989, the second consecutive annual increase following 5 years of decline. When adjusted for 5-percent inflation, the 1-percent increase in real value was the first rise since real values peaked in 1980. Record net cash income in 1987 and near-record income in 1988 combined with lower real interest rates to help end the decline.

Farmland values primarily reflect expected returns to land and the interest rate on real estate loans. Past movements in returns, interest and inflation rates, and farmland values help form these expectations, and so affect current farmland values.

#### *Trends in Returns, Interest Rates, And Farmland Values*

Real farmland values began to increase in the early 1940's. The trend accelerated in 1974 following sharply (albeit temporarily) higher returns to assets during 1972-74 as exports rose. Meanwhile, real interest rates fell as inflation soared, increasing the incentive to borrow money and acquire land.

Despite falling real returns during 1974-77 and a rise in real interest rates, farmland values continued to increase. Investors may have expected expanding

export markets to continue boosting returns on assets.

Real farmland values peaked in 1980, as real returns varied but trended higher during 1977-81. Real interest rates stayed low, particularly during 1977-79. Real land values then fell, as interest rates rose sharply while returns declined owing to reduced exports and lower farm prices.

Falling farmland values, in turn, cut owners' equity. Lower equity and rising interest rates (which increased the cost of borrowing and servicing debt) created financial stress for many operations. The subsequent forced sales placed additional land on the market, which further depressed values.

Beginning in 1987, lower interest rates and more stable returns led to a general improvement in producers' financial positions. These factors were reflected in the farmland market; higher values were reported in February 1988 and again this year.

#### *Most State Values Higher*

Forty-two of the 48 contiguous States recorded higher nominal farmland values in February 1989, 3 posted declines, and 3 reported no change. A year ago, 32 States showed increases, 13 declines, and 3 no change.

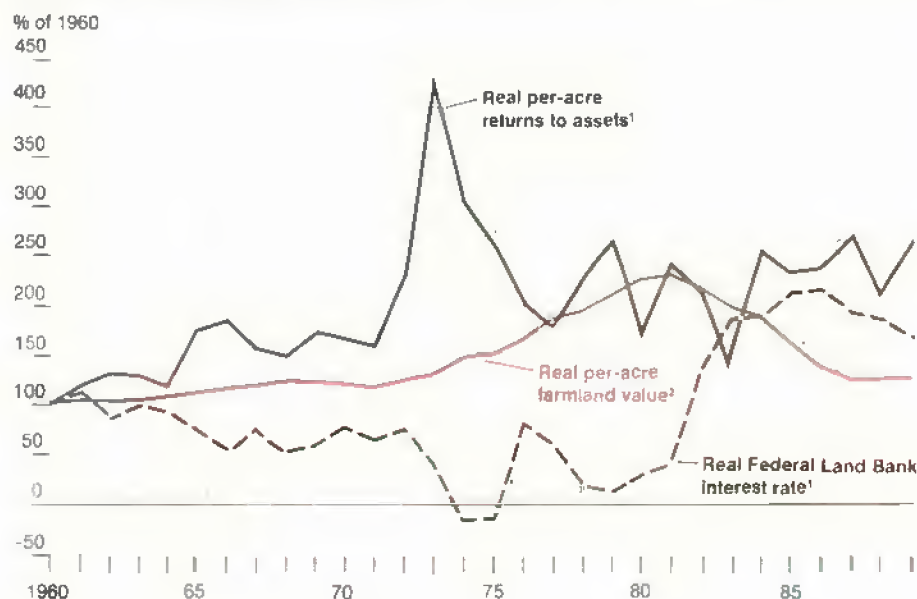
Pennsylvania (21 percent), New Jersey (17 percent), and Delaware (17 percent) led the Northeast's 13-percent average increase. Although 1988 farm incomes were down in the region from a year ago, strong demand for nonagricultural uses drove farmland values higher.

States and regions that had the largest declines from 1981 onward are now experiencing the strongest rebounds. Values rose in the Lake States (5 percent), the Corn Belt (10 percent), and the Northern Plains (9 percent). Even with this year's increase, the February 1989 average for the Corn Belt remains 45 percent below the 1981 peak. Lake States values are down 46 percent and Northern Plains values are down 39 percent from their 1981 highs.

Much of the Lake States, Corn Belt, and Northern Plains were hit by the 1988 drought. Although crop yields fell, receipts were above 1987, following



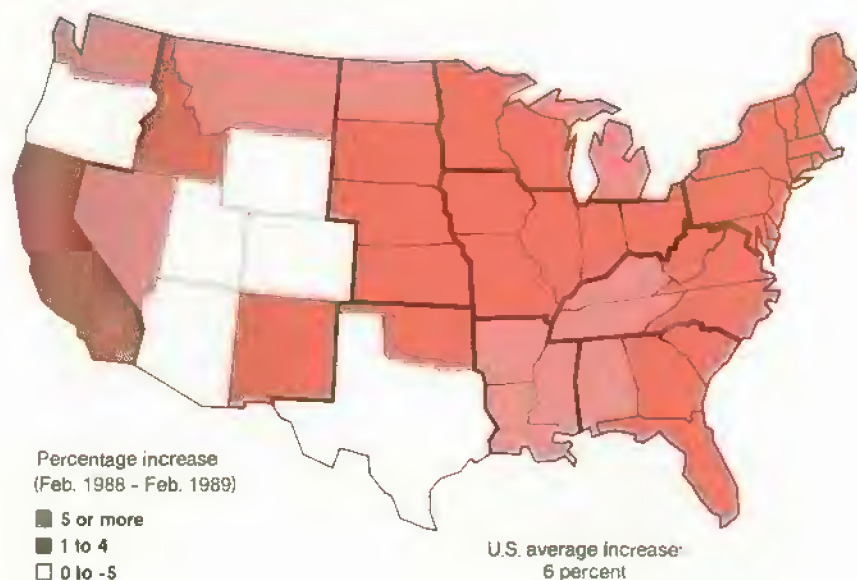
## Returns and Interest Rates Affect Farmland Values



<sup>1</sup>Preliminary for 1988, projected for 1989.

<sup>2</sup>Farmland includes land and buildings.

## Most States Are Showing Higher Farmland Values



higher prices and stock drawdowns. Livestock receipts were near 1987. Federal payments under the Disaster Assistance Act of 1988 also provided relief.

But higher expenses in 1988 more than offset any increases in gross farm income, so net cash incomes were lower for most Corn Belt and Lake States farms. In contrast, net cash incomes were higher for the Northern Plains States.

Virginia's 13-percent increase led the 6-percent expansion in Appalachia. Increases in the Southeast ranged from 4 percent in Alabama to 9 percent in Georgia and South Carolina. Farm incomes in Appalachia and the Southeast increased in 1988.

Both Appalachia and the Southeast have a more varied demand for land—agricultural, urban, recreational, second and retirement homes—than other agricultural regions. So farmland values in

these regions are not tied as closely to the agricultural sector, and fell less rapidly. The February 1989 value for Appalachia was only 6 percent below its 1981 high, while the 1989 value for the Southeast matches its 1981 high.

The 3-percent increase for the Delta States was the first rise since 1981. Sharply higher crop and livestock receipts contributed to substantially higher net cash incomes in 1988 in these States. These increases in income are expected to lead to higher farmland values.

Oklahoma wheat and livestock producers had a good year in 1988, which helped boost farmland values 9 percent. Net cash income in Texas was moderately higher in 1988. But lower values for grazing land, which accounts for about two-thirds of all agricultural land in Texas, pulled the State's average farmland value 5 percent below last year.

Higher values in the Pacific region (5 percent) and the Mountain region (1 percent) represent the first increases since 1984. Farm income in the Pacific region was slightly above a year earlier, while farm income in the Mountain region was slightly lower. Lower values for Mountain-region pasture, which comprises more than two-thirds of all land in farms and ranches in most States, held down total values. Land uses are more varied in the Pacific region, and values for most uses were generally higher.

## Farmland Values Likely Will Rise With Inflation

Net cash income in 1989 is forecast to be down from 1988, primarily reflecting lower Government payments, higher production expenses, and some stock rebuilding.

Many producers may withhold a portion of this year's production from the market in order to replenish grain inventories drawn down in 1988, thereby reducing cash income. However, 1989 net farm income, which includes the value of 1989 crop and livestock sales, less costs, plus changes in the value of inventories, may exceed the 1987 record.

Both interest and inflation rates are expected to be moderately higher in 1989. Because investors typically consider a multi-year time frame when buying farmland, they will be trying to an-

anticipate changes in farm programs, which expire in 1990.

Many investors expect that the trends toward less Government expenditure in agriculture and a more market-oriented sector will continue. Any significant increase in demand for agricultural commodities will come from the export market. On balance, the outlook is for 1989 farmland value increases to slightly exceed last year's 6 percent. [Roger Hexem (202) 786-1422]

## Lower Input Use Can Boost Returns

Concern about the environmental effects of fertilizer and pesticides has spurred interest in practices that reduce chemical use in agriculture. Such practices are often referred to as low input sustainable agriculture (LISA), or alternative agriculture. USDA survey results show that some LISA practices may lower farmers' per-unit cash production costs for some crop mixes in the Corn Belt, thereby boosting profits.

### *Farm Chemical Use Way Up in 3 Decades*

Considerably increased use of agricultural chemicals has contributed to production gains in the Corn Belt. The proportion of corn acres treated with herbicides increased from 30 percent in 1960 to 97 percent in 1987, while corn acres treated with insecticides rose from 10 percent to 40 percent. Nitrogen application rates for corn doubled between 1960 and 1987.

Many of today's higher yields are associated with the increased use of agricultural chemicals that go hand-in-hand with the new seed technology. But some input-intensive farms have been particularly affected by costs rising faster than returns.

Some environmental analysts believe chemical-intensive agriculture could be responsible for nitrate and pesticide residues in surface and groundwater, as well as for soil erosion and compaction. Some have attempted to link chemical-intensive farming practices to human and livestock health problems and the appearance of pesticide-resistant pests.

LISA could reduce total agricultural chemical consumption. Low input practices include integrated pest management, biological pest control, crop rotations, and reduced chemical input use. LISA substitutes knowledge and managerial skills (and land, if new rotations are involved) for fertilizer and pesticides.

### *Corn Belt Farms Are Specialized*

Cropping patterns in the east-central Corn Belt have been influenced by several factors favoring conventional agriculture: Government farm programs that encourage base acres of corn and discourage other crops; changes in relative prices; and changes in technology. The intensive use of fertilizer and pesticides suggests farmers believe that yields and, by implication, returns per acre, are reduced by lower use of fertilizer and chemicals, or by crop rotations that use land less intensively.

Between 1950 and 1987, many Corn Belt farms switched from low-input crop rotations, including hay and oats, to continuous corn or corn/soybeans. Meanwhile, the livestock sector changed to larger operations, and relatively fewer cattle and more hogs.

However, with specialization, farmers do not realize the potential benefits of crop rotation, such as replenishing nitrogen and altering pest cycles. While most Corn Belt farmers have successfully specialized in either crops or livestock, there are at least two indications that specialization and intensive input use may be slowing from the past 20 years.

First, given greater hay area harvested in Missouri and less corn area, non-row crops appear to have become more popular. Second, growth in fertilizer application rates has slowed. This could indicate diversification, because the slowing took place as crop-to-fertilizer price ratios strengthened a bit.

Yet it is not known what part of the slowdown may be due to decreasing returns to fertilizer, and what part may be due to use of more crop rotations.

It is not clear that low-chemical-input cropping patterns are becoming more widespread in the Corn Belt. Except in the Great Plains, the Corn Belt appears to

have fewer economically attractive crop alternatives than other regions. Relatively short growing seasons limit the potential for new crops and rotations. Alternative farm enterprises are likely to be labor intensive, and farm labor is scarce in the region, especially at harvest time.

### *Lower Inputs Can Produce Higher Returns*

Data from the USDA Farm Costs and Returns Survey (FCRS) were used to measure profitability of farms classified by fertilizer and pesticide expenditures for four crop mixes in 1985-87. Farms in the eastern Corn Belt (Illinois, Indiana, Iowa, Missouri, and Ohio) were studied. The survey included farms that grow primarily corn, soybeans, or small grains and hay, and farms that usually raise livestock.

Four key crop mixes involving corn, soybeans, oats, hay, and wheat were identified. These mixes account for about 90 percent of the cultivated area represented by FCRS samples.

Differences in fertilizer and pesticide expenditures, returns per acre, and returns on assets were analyzed within crop mixes for 2,122 Corn Belt farms in 1985, 2,258 farms in 1986, and 1,841 farms in 1987. Farms were grouped into low expenditure classes (less than \$25 per cultivated acre), medium expenditure classes (\$25-\$50 per acre), and high expenditure classes (greater than \$50 per acre) for fertilizer and pesticides. From these samples, it is possible to make inferences about all Corn Belt farmers.

Survey results indicate that, for the farms with the corn/soybean crop mix with livestock, low or medium fertilizer and pesticide expenditures per acre tended to show relatively high returns on assets and returns per acre.

In contrast, for the specialized corn farms, medium expenditures per acre tended to show higher rates of return on assets than did low or high expenditures. For the farms with corn/soybeans/oats/hay and corn/soybeans/oats/wheat/hay mixes, no relationship appears between input expenditures and return on assets.

Some high-expenditure operations had consistently lower rates of return on assets. These included corn/soybean operations, specialized corn operations with



# For Some Crop Mixes, Low or Medium Input Use Is Associated With Higher Returns

Mix		Net returns per acre			Returns on assets		
		Low	Dollars Medium	High 1/	Low	Percent Medium	High
Corn/soybeans/ oats/hay All farms 2/	1985	42.99	76.11	141.29	4.0	8.0	7.0
	1986	105.98	93.23	183.94	8.0	6.0	8.0
	1987	56.87	76.88	87.36	6.0	6.0	5.0
Corn/soybean With livestock	1985	117.80* 3/	73.51**	59.86	15.0*	7.0	4.0
	1986	81.62	136.07	98.55	10.0*	13.0	5.0***
	1987	72.27	101.32**	47.68	9.0*	8.0	4.0***
With little*or no livestock	1985	90.16	85.38	85.79	13.0*	11.0	6.0***
	1986	63.21	38.99	92.66	12.0*	5.0**	7.0
	1987	59.85	59.28	64.61	8.0*	6.0**	6.0
Specialized corn All farms	1985	59.17*	94.38**	108.80	5.0	9.0**	6.0***
	1986	47.18	91.64**	57.51***	4.0	7.0**	3.0***
	1987	29.12*	125.39**	114.00	3.0	8.0**	5.0
Corn/soybeans/ oats/wheat/hay With livestock	1985	43.90	83.19**	60.36	5.0	10.0**	3.0
	1986	65.07	65.41	113.12	7.0	6.0	8.0
	1987	59.20	70.38	70.45	5.0	6.0	6.0
With little*or no livestock	1985	65.46*	59.89	113.41***	11.0	8.0	10.0
	1986	30.78	9.44	38.41	5.0	1.0*	3.0
	1987	44.66	44.77	56.57	5.0	4.0	3.0

1/ Low expenditures defined as less than \$25 spent on fertilizer and chemicals per cultivated acre; medium expenditures, \$25-\$50 per acre; high expenditures, more than \$50 per cultivated acre. 2/ Livestock and nonlivestock combined to assure more than 30 observations per cell. 3/ Statistically significant at the 5- or 10-percent level: \* = low versus high; \*\* = low versus medium; \*\*\* = medium versus high. The statistically significant results hold for alternative definitions of net income, with and without Government payments. Means of return per acre and return on assets were tested using weighted observations, after adjustment for the complex nature of the survey design.

livestock for 1985-87, and corn/soybeans without livestock for 1985. These high-expenditure farms accounted for an average of more than 8 percent of cultivated area in the Corn Belt. Some farmers using these crop mixes might be able to pare back their expenditures on fertilizer and pesticides, and improve profitability.

While differing land quality could account for some of the differences, the farms compared here are in areas with relatively similar soil types. Numerous other factors, including managerial ability, influence returns on investment and profitability per acre. So reducing fertilizer and pesticide expenditures per acre will not necessarily guarantee increased profits.

## Policies Can Affect Input Use

Protecting groundwater, which supplies most livestock and rural residents and more than half of the urban population, is a major environmental issue in many

parts of the Corn Belt. Groundwater quality is a concern in areas where contamination by nitrates and other pollutants may be closely linked to agricultural practices. Among the policies to prevent nitrate and pesticide contamination are persuasion, education, taxes, and regulation, including chemical quotas.

Some Corn Belt farmers with corn/soybean rotations and high input expenditures may benefit from better information about testing for nitrogen levels in the soil, the nitrogen benefits from planting legumes, and the nitrogen content of manure. University studies in Nebraska and Iowa suggest that some farmers may be overusing nitrogen by 25-50 percent.

Another policy option would be to impose taxes on fertilizer purchases to pay for education programs. The programs would alert farmers to the potential side effects of nitrogen overuse, and show the benefits of cutting nitrate contamination of groundwater.

Some analysts have suggested that a user tax on nitrogen fertilizer could cut improper and excessive applications. But it is unclear how high a tax might be required to reduce fertilizer use by a particular amount. Such a tax might lead farmers to use more animal manure, which can also lead to nitrate contamination if not managed properly. And taxes do not help farmers increase profits.

Regulations could control groundwater contamination. Regulations may be more precisely targeted than taxes, but may be more costly to administer. Regulations could include quotas on fertilizer use and limitations on fall fertilization. Or property transfer restrictions might influence use. Property owners could be required to have wells certified as meeting specified standards when property is transferred.

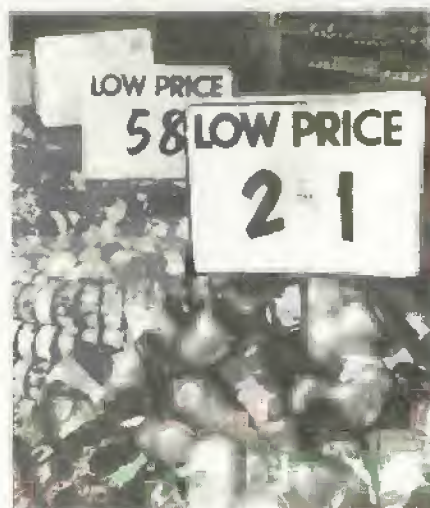
The corn program, with its price supports and base acreage provisions, may discourage rotations and boost intensive use of inputs. If changes appear warranted, base flexibility or realignment of target prices could be enacted to alleviate these concerns, among other possible measures.

Acreage-reduction programs, which decrease use of nitrates and other inputs, have been viewed as another means to protect groundwater, even though some farmers may react by farming other areas more intensively.

State, local, and regional policies could address groundwater problems, perhaps coordinated by Federal legislation. The Water Quality Act of 1987, an amendment to the Clean Water Act, already involves a State and Federal partnership and may serve as a model.

While many farmers may not shift to low-input agriculture in the Corn Belt in the near term, some farmers may be able to pare back expenditures on fertilizer and chemicals and improve profits.

Alternatively, should more State legislatures, or an entire region, impose taxes on fertilizer or chemicals, farmers may adopt some low-input practices and remain profitable if they choose appropriate crop mixes. A shift to lower-chemical-input practices could be one way to improve environmental quality while maintaining profitability. [Rich Nehring (202) 786-1459]



## Food and Marketing

### Food Prices Rise

The Consumer Price Index (CPI) for food increased at an annual rate of 8.6 percent during the first quarter of 1989, well above the rate expected late last fall. Additional upward adjustments are likely for the rest of this year, based primarily on the strength of consumer demand and the impact of higher petroleum prices. The CPI for food in 1989 is now projected to average 4 to 7 percent above 1988.

#### *Bad Weather To Blame For First-Quarter Increases*

Fresh vegetable retail prices in the first quarter were expected to average below the highs of first-quarter 1988, but actually averaged 5.7 percent higher. Freeze damage in Mexico and Florida and cold temperatures in California cut supplies. These disruptions were responsible for much of the unexpected first-quarter rise in food prices.

Other price increases in the first quarter resulted from lingering adjustments following last summer's drought. Processed vegetable prices continued to rise because of smaller supplies of canned sweet corn, green peas, snap beans, and dry beans, all victims of the drought. Smaller supplies of canned vegetables forced frozen vegetable prices

higher as well. The CPI for processed vegetables in the first quarter was 13.2 percent above a year earlier.

Retail egg prices were 29.5 percent above a year earlier. Production was cut back in the first quarter because of high, drought-related feed costs.

#### *Outlook Becoming More Moderate*

Food price increases for the rest of 1989 are not expected to be as sharp as in the first quarter. The CPI for meats, poultry, and fish will remain reasonably stable for the rest of the year. Egg prices are expected to continue to fluctuate, but should remain well above a year earlier.

Following the normal pattern, retail prices of fresh vegetables will decline from the first quarter during the spring and summer, and ease upward again in the fourth quarter. Retail prices of cereals and bakery products, fats and oils, and other prepared foods will rise at a modest but steady 1 to 3 percent annual rate per quarter through 1989.

Consumer demand will pull up food prices in 1989. While growth in the general economy is slowing, growth in real disposable personal income is still likely to be 2 to 3 percent this year, after rising 2.9 percent last year. Unemployment is at a 15-year low. These figures indicate continued strength in consumer demand.

With stronger income, consumers may be more tolerant of food-price increases, particularly among foods perceived to be of higher value, such as higher valued cuts of meats and poultry, fresh fruits and vegetables, and convenience foods. Also, with added income, consumers likely will demand more meals away from home.

Costs of processing and distributing food (labor, packaging, transportation, and fuel and energy) are expected to increase 4 to 6 percent in 1989. The key item this year will be higher crude oil prices.

Changes in prices of inputs for processing and distribution are measured by the Marketing Cost Index. Three of the four major inputs depend heavily on energy. Costs of fuel and power for heating, air conditioning, and refrigeration are tied to oil prices.

Fuel costs are a major component in the cost of transportation. The manufacture of packaging materials, such as paperboard, glass, aluminum, and metal containers, is energy intensive. Plastic is derived from petroleum. As a result, oil prices can have a significant impact on the cost of processing and distributing food, and oil prices are projected to increase 21 percent for 1989. Processing and distribution costs account for about 70 percent of prices consumers pay for food in grocery stores. [Ralph Parlett (202) 786-1870]

#### Food Prices Forecast To Rise 4 to 7 Percent

Item	1985	1986	1987	1988	1989 F
Annual percent change in CPI food					
Components					
Food at home	1.4	3.2	4.3	4.2	5 to 7
Beef and veal	-2.1	0.6	7.6	5.5	3 to 5
Pork	0.2	8.2	8.2	-3.0	-1 to 2
Poultry	-1.0	7.5	-1.4	7.2	7 to 10
Fish and seafood	4.9	9.2	10.6	5.8	4 to 6
Eggs	-16.6	6.9	-5.9	2.3	15 to 20
Dairy products	1.9	0.2	2.5	2.4	5 to 7
Fresh fruit	10.1	2.1	11.2	8.3	8 to 10
Processed fruit	4.1	-2.9	4.0	10.3	4 to 6
Fresh vegetables	-4.3	4.0	12.9	6.3	2 to 4
Processed vegetables	1.1	-0.2	2.8	4.8	8 to 10
Fats and oils	2.2	-2.2	1.5	4.6	7 to 9
Sugar and sweets	2.5	3.1	1.8	2.7	4 to 6
Cereal and bakery products	3.8	2.8	3.5	6.4	6 to 8
Nonalcoholic beverages	2.0	5.9	-2.6	0.0	3 to 5
Food away from home	4.0	3.9	4.0	4.1	4 to 7
All food	2.3	3.2	4.1	4.1	4 to 7

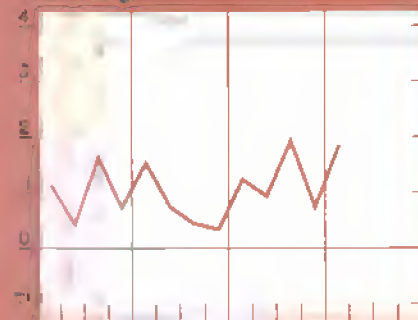
Source: Bureau of Labor Statistics, Department of Labor.

USDA Contact: Ralph Parlett (202) 786-1870



CPI: Total food<sup>o</sup>

Percent change



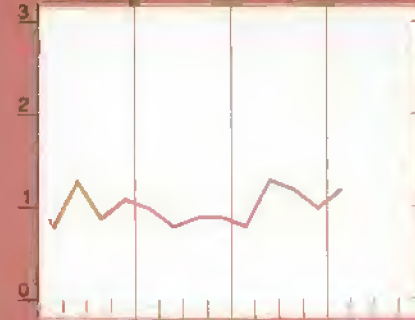
CPI: Food at home<sup>o</sup>

Percent change



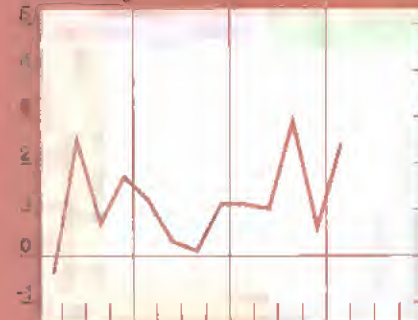
CPI: Food away from home<sup>o</sup>

Percent change



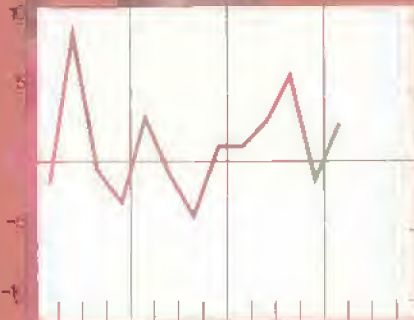
Retail cost of food<sup>1</sup>

Percent change



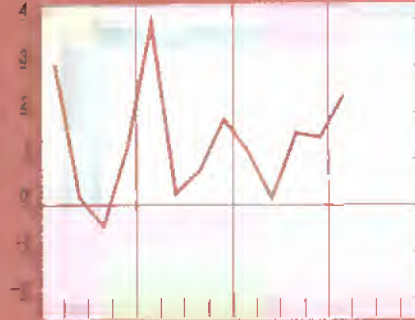
Farm value of food<sup>1</sup>

Percent change



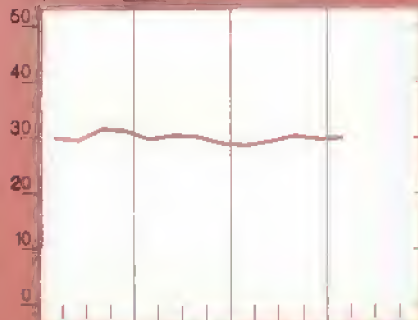
Farm-retail spread<sup>1</sup>

Percent change



Farm value/retail cost<sup>1</sup>

Percent change



Food marketing cost index<sup>2</sup>

Percent change



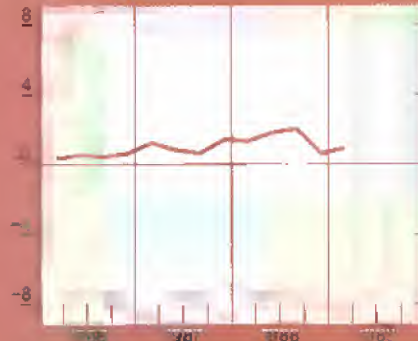
Index of hourly earnings<sup>3,4</sup>

Percent change



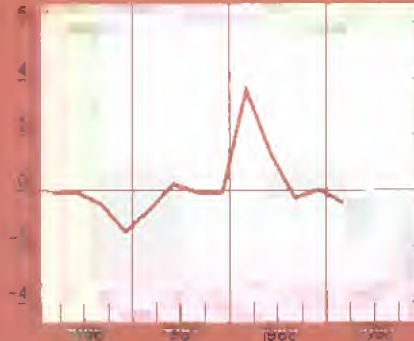
Index of packaging prices<sup>4</sup>

Percent change



Index of rail freight rates<sup>4</sup>

Percent change



Index of energy rates<sup>4</sup>

Percent change



<sup>o</sup>CPI unadjusted. Index based on market basket of farm foods. <sup>2</sup>Index of changes in labor, packaging, transportation, energy, and other marketing costs.

<sup>1</sup>In food retailing, wholesaling, and processing. <sup>4</sup>Component of food marketing cost index.

All series expressed as percentage change from preceding quarter, except for 'Farm value/retail cost' chart.



## Special Articles

### Banning Soil Fumigants: What Cost?

**T**he U.S. Environmental Protection Agency (EPA) is conducting preliminary reviews of soil fumigants before deciding whether to ban them or restrict their use. Concerns exist about potential adverse effects of these fumigants on the environment and human health.

A case in point was when two soil fumigants, DBCP and EDB, were banned in the early 1980's. They caused groundwater pollution and increased risks of cancer or sterility in humans exposed to them directly or as residues in groundwater or food products.

Economic effects of potential pesticide bans must be considered along with the environmental and health effects, according to the Federal Insecticide, Fungicide, and Rodenticide Act.

Short-run economic effects are estimated based on a biological study of the expected effects of fumigant bans on the yields of 10 crops: citrus fruit (oranges and grapefruit), citrus tree seedlings, cotton, potatoes, tobacco, tobacco seedlings, fresh tomatoes, fresh tomato seedlings, processing tomatoes, and forest tree seedlings.

The economic analysis is based on previous estimates of how market prices change in response to changes in the supply of the commodities concerned. The analysis is short run, and assumes that imports would not flood into the U.S. and that new producers would not enter the market. However, if imports did come in, and new producers stepped in, estimated price changes would be dampened. Estimates should be viewed as midpoints of an expected range.

In the short run, producers who use fumigants to control soil-borne pests would be worse off by \$100-\$200 million per year under a ban, despite higher prices received. If the EPA banned soil fumigants for citrus fruit, potatoes, tomatoes, tobacco, and a few other crops, output of these crops would decline. Producers who do not use fumigants would be better off by \$480-\$800 million per year through higher prices received.

Consumers would pay \$3.0-\$5.1 billion more annually in the short run. Average consumer prices likely would rise 53 percent for fresh tomatoes, 11 percent for potatoes, 8 percent for canned tomatoes, and 4 percent for tobacco. A ban on fumigants would have no effect on prices of cotton products, citrus fruit, or frozen juice.

#### *Fumigants Used Widely In Certain Soils*

Soil fumigants are volatile pesticides applied to soils before a crop is planted. These fumigants are methyl bromide, 1,3-D, chloropicrin, and metam, used alone or in mixture. They are widely used in U.S. agriculture to control plant diseases and parasitic nematodes, and less widely to control insects and weeds.

In 1985-87, a panel of scientists estimated how losing one or more soil fumigants would affect crop yields. The panel served under the National Agricultural Pesticide Impact Assessment Program, a joint activity of USDA and State land-grant universities. The panel also estimated changes in control costs if fumigants were banned.

The study outlined seven fumigant ban scenarios and availabilities for each crop. The scenarios differ according to hypothetical EPA decisions to ban certain fumigants. However, only one scenario is discussed here: banning all soil fumigants. Pest control alternatives to fumigants are considered to be used on the acreage formerly treated with fumigants.

The proportion of crop acreage treated with a fumigant or fumigant alternative under the base period (1982-84 average) is extremely important in determining the effect of any scenario on national average yield or control costs. The proportion is high (about half of planted acres) for tobacco and fresh tomatoes.

#### *Biological Estimates Are Used In Economic Analysis*

Analysis based on the biological study shows how soil-borne pests would affect crop yields if all fumigants were banned.



Cultural practices, allowable chemicals, treated acreage, and control costs are considered. The assessment appraises what the short-run effects on producers and consumers would have been for 1982-84 had fumigants been banned, compared with actual 1982-84 average results.

The panel of scientists noted the potential for major long-term biological effects on certain crops, such as citrus fruit and forest nursery seedling crops and the resulting trees, but did not attempt to quantify these effects.

A decrease in crop production usually leads to an increase in the crop price the farmer receives, and to an increase in gross revenue the farmer receives for the crop sold, assuming the influence of farm and commercial stocks is neutral. If yields decrease, the farmer's gross revenue would increase, since higher prices have a greater effect on the farmer's revenue than does lower production, given the way consumers respond to price increases.

However, the alternatives to existing soil fumigants often cost more. Higher pest control costs could offset a gross revenue increase after a ban. Therefore, for any crop, net revenue change attributable to a regulatory action on fumigants is the gross revenue change minus the control cost change.

While the effects are averaged over all producers of a given crop, only a small portion of acreage may actually be treated with fumigants. As a result, losing one or more fumigants could have a minimal effect on growers not using fumigants, but a devastating effect on growers using them. The severity is diluted when averaged over all planted acreage, both treated and untreated. Those crops of highest total value, cotton and tobacco, are the crops least affected by potential fumigant bans.

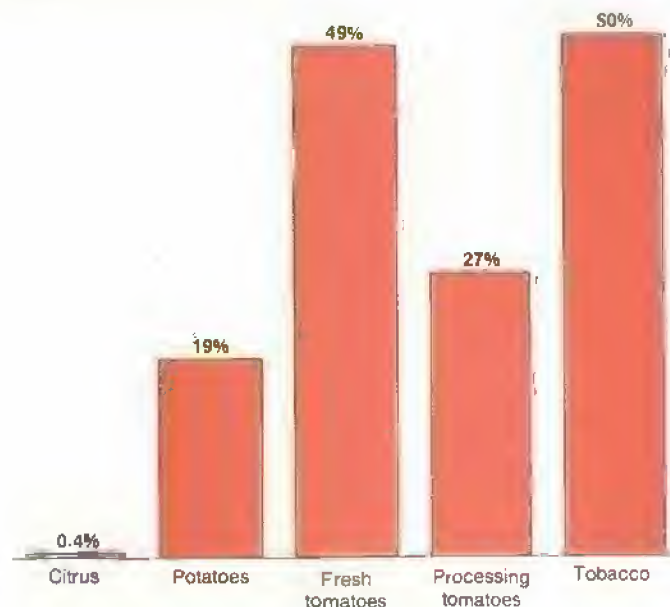
### ***Producer Effects Vary Markedly by Crop***

The total farm value of all the crops studied was \$12.3 billion for the base period. If all fumigants were banned, those producers who formerly used fumigants would be worse off by \$100-\$200 million per year, as a result of lower yields not offset by the higher prices received and generally lower production costs. Nonuser producers, however, would gain \$480-\$800 million per year as a result of higher prices received without changes in yield or production cost. The effects on producers of specific crops are as follows:

- Citrus seedlings—Fumigant loss in the short run would lead to alternative, higher cost methods of pest control for citrus nursery seedbeds, raising production costs by about \$500 per acre for the 27 percent of seedbed acreage where fumigants are used. In the long run, operators would produce higher cost transplants of less vigor.
- Tobacco—Producers would be affected in two stages. Production costs would rise about \$200 per seedbed

### **Soil Fumigant Use Varies With Crop**

Percent of acreage treated



### **Banning All Soil Fumigants Would Lower Production, Raise Prices**

Percentage change

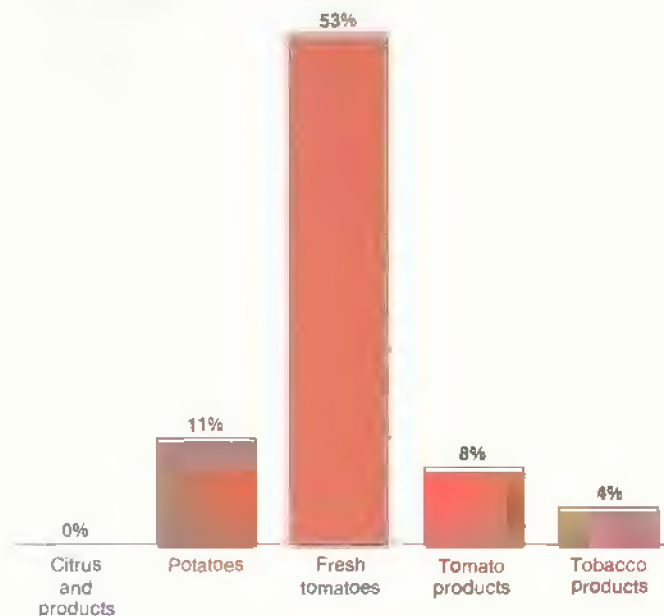


acre at the seedling stage, as sterile mixes, nonfumigant chemicals, and hand weeding replaced fumigants in seedbeds (virtually all of which are normally fumigated). Second, control cost per field acre would rise \$98 (50 percent of tobacco field acreage is normally fumigated). Overall yield loss would be about 4 percent.

- Forest tree seedlings—Returns to Southern growers would fall 39 percent, as yields would fall 75 percent on treated acreage. Over 95 percent of Southern seedbed

## Most Retail Prices Would Rise After a Fumigant Ban

Percent Increase



acreage is fumigated annually, and seedlings are harvested after 1 year's growth.

While 23 percent of forest tree seedling acreage in the North is fumigated annually, seedlings are harvested after 2 or 3 years' growth. Northern growers would be better off by an average of 6 percent of crop value the first year after fumigant loss, because seedling prices would rise. Both Northern and Southern growers would incur higher costs in subsequent years.

- **Potatoes**—Net revenue of growers in the West would rise 20 percent, while that of growers in the East would rise 8 percent. Yields on normally treated acreage would fall 20 percent in the West and 34 percent in the East. Consumer prices of Western potatoes would rise relatively more, because a much greater share of acreage is fumigated in the West.
- **Fresh tomatoes**—Growers would receive increased net revenues of 3 percent in the West and 4 percent in the East. Eastern yields on normally treated acreage would fall 64 percent, leading to sharply lower total production and higher prices. Higher control costs would almost cancel out the greater revenue, since about 63 percent of fresh tomato acreage in the East is normally fumigated.

Only 9 percent of acreage in the West is normally treated. Yield loss in the West would be 26 percent, and control costs would drop by an estimated \$418 per acre. Western growers would come out slightly ahead because higher prices and lower control costs would outweigh the reduced production on the 10 percent of acreage that is treated.

- **Processing tomatoes**—Returns to Western growers would rise 7 percent, mainly because prices would rise as yields fell by about 11 percent. Control costs would also rise, but not enough to negate the revenue increases.
- **Tomato seedlings**—Revenues of growers in the East (where almost half of the acreage is treated with fumigants) would fall 11 percent following loss of fumigants. Yields would fall an estimated 40 percent.
- **Cotton**—Cotton farmers would not be much affected, since little cotton acreage is treated with fumigants.

## Some Retail Prices Would Rise, At Least Initially

Following a ban on all soil fumigants, fresh tomatoes would post the biggest short-run average price increase (53 percent over base period), followed by potatoes (11 percent) and canned tomatoes (8 percent). Loss of fumigants would not affect short-run prices of cotton products, citrus fruit, or frozen juice. Imports could mitigate the short-term price increases. In the long term, these effects would likely be dampened because processors would contract for more acreage. *(Joseph R. Barse and Walter L. Ferguson (202) 786-1462)*



## Generic Certificates Cut Stocks And Boost Income

**G**eneric certificates, authorized under the Food Security Act of 1985, are issued at the discretion of the Secretary of Agriculture in lieu of Government cash payments to crop program participants and merchants of agricultural products.



The certificates can be used to acquire program crops held as collateral on Government loans or owned by the Commodity Credit Corporation (CCC).

Certificates have increased the amount of grain available to the market by reducing forfeitures on regular 9-month and Farmer-Owned Reserve (FOR) loans, and also by moving CCC stocks into the market. Farmers can hold the certificates, sell them, or exchange them for CCC-owned stocks, depending on what is most profitable under then-current loan rates, market prices, and storage costs.

### What Are Generic Certificates?

Generic certificates are not currency; they are a claim on CCC assets and are backed by commodities owned by CCC. Certificates have a fixed dollar face value and an 8-month life (at face value) beginning at the end of the month of issuance.

They are generic in that they can be exchanged for a variety of commodities under loan and in CCC inventory, including wheat, rice, rye, corn, grain sorghum, barley, oats, soybeans, upland cotton, honey, and dairy products. They do not need to be exchanged for the same commodity they were issued for. Farmers may market or use the reacquired commodities. The certificates are negotiable in that ownership and the right to exchange them can be transferred.

Certificates can be used in a number of ways:

- Farmers can exchange them for crops held under 9-month and FOR loans, as well as on loans extended under the Special Producer Storage Loan Program. In this way, producers can use or market commodities pledged as collateral before the loans mature or, for FOR loans, before they are in release status.
- Certificates can be sold or transferred to others prior to their expiration date. Cash sales may be above or below face value, depending on supply and demand. For example, certificates reportedly sold for a record 30-35 percent above face value during October 1986, but since April 1988 they have sold at par or at a slight discount.
- Farmers who are first owners can redeem certificates with the CCC for cash at face value during the sixth through eighth month of the certificates' life. After the expiration date, they are redeemable at 85 percent of face value for 6 months. During the subsequent 12 months, they are redeemable at 50 percent of face value. The redemption value falls to zero after 18 months.
- Certificates may be exchanged for commodities owned by the CCC. CCC periodically publishes catalogs that list commodities available for exchange.
- Holders of certificates may exchange them for wheat at the so-called wheat auction. The auctions began November 6, 1987, and permit exchanges for previously

### Generic Certificates Issued as of March 31, 1989 1/

	Deficiency	Diversion	Total
----- Million dollars -----			
Program payments			
1987/88 crop year			
Wheat	2,404	--	2,404
Corn	3,695	1,119	4,814
Barley	200	26	226
Oats	11	6	17
Sorghum	357	112	468
Cotton	749	--	749
Rice	513	--	513
Total	7,931	1,262	9,191
1988/89 crop year			
Wheat	530	--	530
Corn	1,311	563	1,874
Barley	53	22	75
Oats	5	--	5
Sorghum	128	59	187
Cotton	190	--	190
Rice	44	--	44
Total	2,260	644	2,904
Total deficiency/ diversion payments 2/			18,450
Other			
Ethanol	na	na	54
Export Enhancement Program	na	na	2,131
Targeted Export Assistance Program	na	na	247
Market rice	na	na	19
Emergency Feed Program	na	na	128
Conservation Reserve Program	na	na	1,193
Program and Nonprogram Disaster	na	na	623
Total generic certificates issued	na	na	22,845
1/ Cumulative issuances since April 1986. 2/ Includes 1986/87 program deficiency and diversion payments.			

-- = none reported. na = not applicable.

Source: Agricultural Stabilization and Conservation Service.

### CCC Wheat Auctions, 1987-89

Date	Amount	Value	Average bid
	Mil. bu.	\$ mil.	\$/bu.
1987:			
November	37.9	92.4	2.44
December	93.2	244.7	2.63
1988:			
January	88.7	243.4	2.74
February	69.2	188.6	2.73
March	65.0	169.2	2.59
April	28.9	73.3	2.67
May	2.3	6.3	2.74
June	1.6	5.3	3.26
July	0.2	0.7	3.60
August	0.4	1.4	3.40
September	0.1	0.4	3.72
October	0.3	1.0	3.93
November	1/	0.2	3.88
December	1/	1.1	3.58
1989			
January	0.1	0.3	3.83
February 2/	0.1	--	--
Total	388.0	1,028.3	2.66

1/ Less than 0.05 million bushels. 2/ Through February 15, 1989.

-- = not available.

Source: Agricultural Stabilization and Conservation Service, USDA.

## Cumulative Generic Certificate Exchanges as of May 2, 1989

Commodity 1/	Unit	CCC Inventory 2/	Producer loans	Total
<b>Food grains</b>				
Wheat				
Volume	(Mil. bu.)	784.7	669.2	1,453.9
Value	(Mil. \$)	2,057.7	1,619.1	3,676.8
Rice				
Volume	(Mil. cwt)	42.9	14.7	57.6
Value	(Mil. \$)	158.4	53.7	212.0
<b>Feed grains</b>				
Corn				
Volume	(Mil. bu.)	1,642.1	7,449.8	9,091.9
Value	(Mil. \$)	3,501.2	12,465.2	15,966.4
Grain sorghum				
Volume	(Mil. bu.)	256.5	483.7	740.2
Value	(Mil. \$)	520.5	812.9	1,333.3
Barley				
Volume	(Mil. bu.)	103.9	195.8	299.7
Value	(Mil. \$)	169.4	258.1	427.5
Cotton				
Volume	(Mil. bales)	.91	6.66	7.56
Rye, oats, soybeans				
Value	(Mil. \$)	37.0	51.2	88.3
Total value 3/	(Mil. \$)	6,444.1	15,260.3	21,704.3

1/ Other program commodities, for which few or no exchanges have been made, include honey, nonfat dry milk, butter, and cheese. 2/ CCC loans as of April 28, 1989. 3/ Does not include values for cotton exchanges.

Source: Agricultural Stabilization and Conservation Service, USDA.

announced lots of catalogued wheat at an accepted bid rate. The auctions have generally been held once a week.

### How Are Certificates Issued And Exchanged?

Farmers have received generic certificates as payments for land diversions, the Conservation Reserve, deficiency payments, rice marketing loans, and disaster and emergency feed programs. Grain merchants and commodity groups have been issued certificates through the Export Enhancement Program and the Targeted Export Assistance Program. Ethanol producers also have been issued certificates.

CCC issued \$22.8 billion in generic certificates between April 1986 and March 31, 1989. Most of these were deficiency and diversion payments to corn and wheat producers, followed by the Export Enhancement Program and the Conservation Reserve. Producers received \$18.4 billion, or about 80 percent of certificate issuances, in the form of deficiency and diversion payments. They also received \$1.2 billion under the Conservation Reserve Program. Export merchants received \$2.1 billion, or about 10 percent of total issuances.

Certificate exchanges for grains and oilseeds as of May 2, 1989, totaled \$21.7 billion. Three-fourths of these were for corn. Wheat, grain sorghum, and barley account for most of the remainder. Of the 9 billion bushels of corn exchanged, over 80 percent were for producer loans, with the rest for CCC inventory. Exchanges for wheat totaled 1.5 billion bushels, about 54 percent of which was for CCC inventory and 46 percent for producer loans.

The bulk of the exchanges for CCC wheat were made through the wheat auctions. About 388 million bushels of CCC wheat were acquired with certificates from November 4, 1987, through February 15, 1989. With an average auction bid of \$2.66 a bushel, the value of exchanges was \$1.03 billion. About 73 percent of these exchanges were for hard red winter wheat, 18 percent for hard red spring, and the balance for soft red winter, durum, and white wheat.

Wheat auctions were heaviest during their first 6 months, averaging about 64 million bushels a month. The auctions accounted for 83 percent of total CCC wheat exchanges in December 1987-February 1988, and 60 percent in March-May 1988. Total exchanges between November 1987 and April 1988 were about 383 million bushels. Only 5 million bushels were auctioned between May 1988 and February 15, 1989. Auction activity is not expected to increase unless CCC wheat stocks rise significantly from the lows realized since the 1988 drought.

### Producer Effects of Certificates Vary

Generic certificates have had varying effects on producers, depending on whether prices were above or below loan levels.

When USDA-determined exchange prices, called posted county prices (PCP's), were below loan repayment levels, producers used certificates for "Quick-PIK": placing their crop under loan after harvest, and immediately redeeming it with certificates. This yields a positive return because farmers receive the loan rate without incurring 9 months of storage costs.



## How Do Generic Certificates Work?

Consider a producer who signed up in the 1987 wheat program. Suppose the producer received \$1,000 in a generic certificate as part of his Government program payments (mainly advance deficiency and diversion) and placed 457 bushels of wheat under 9-month loan.

After loan placement, our farmer has two options. First, he can hold the crop for 9 months, pay for approved storage, and then forfeit the loan collateral to the Government. The certificate can then be either sold at prevailing prices or exchanged at face value for cash with the CCC after 5 months. The producer keeps the loan proceeds (457 bushels times the \$2.28 loan rate) and the benefits from the value of the certificate, but must pay for storage costs over the 9-month life of the loan (457 times \$0.27). The producer nets \$1,919 under this option.

The second option is for the farmer to reacquire the loan collateral with certificates and sell the crop at the market price. The farmer can reacquire the loan collateral with certificates the same day it is placed under loan, and market the crop, thus saving on storage costs.

The number of bushels under loan that can be reacquired with certificates depends on the posted county price (PCP) and the face value of the certificates. Assuming the PCP in this example is \$2.19 and the face value of the certificate is \$1,000, all 457 bushels can be reacquired with the certificate. The reacquired wheat can then be sold on the market at prevailing prices. Thus, the farmer keeps the loan revenue and the market returns from the reacquired grain, and pays no storage fees on the 9-month loan. Our wheat farmer under this option nets \$2,047.

The \$1,000 certificate is worth \$1,128 to the producer who wishes to redeem the loan, about 13 percent above par value. If certificates are trading for more than this premium, producers could possibly earn more by selling their certificates for cash and keeping the crops under loan. If certificates are selling at premiums less than 13 percent, producers would gain by purchasing additional certificates for cash to exchange for the remainder of their crops under loan.

While certificates are generic, returns from exchanging certificates for crops under loan are greatest for those commodities whose potential storage cost savings are highest relative to the PCP's. Storage costs per bushel are similar for wheat, feed grains, and soybeans, but corn is typically the cheapest per bushel.

Quick-PIK opportunities were prevalent during the first 2 years of the program. Producers generally had three options after placing their crop under loan: (1) repay the loan with cash during the 9 months, (2) forfeit the loan collateral after storing it for 9 months, or (3) use generic certificates to redeem the loans just after placement, and sell their crop at prevailing market prices (Quick-PIK).

## Exchanging Generic Certificates for Crop Loan Collateral\*

Item	Wheat	Corn
Dollars/bu.		
1987 loan rate	2.28	1.82
Posted county price (PCP)	2.19	1.74
Farm price	2.20	1.75
9-month storage cost	.27	.27
Dollars		
Certificate value	1,000	1,000
Bushels		
Bushels exchanged with certificate	457	575
Dollars		
Loan forfeiture:		
Certificate value	1,000	1,000
Loan proceeds (457 x \$2.28)	1,042	1,047
Storage costs (457 x \$0.27)	-123	-155
Net value of forfeiture option after 9 months	1,919	1,892
Certificate exchange:		
Certificate value	1,000	1,000
Loan proceeds	1,042	1,047
Loan redemption	-1,000	-1,000
Sales revenue (457 x \$2.20)	1,005	1,006
Net value of Quick-PIK	2,047	2,053
Net difference between options	128	161
Per-dollar certificate value	1.13	1.16

\*Reflects returns for producers who would otherwise forfeit their crops under loan at the end of 9 months.

The more bushels that can be acquired for a fixed value of certificates, the greater the storage savings. In the example, exchanges of a \$1,000 certificate will save \$123 on storage of 457 bushels of wheat, but \$155 on storage of 575 bushels of corn.

Using certificates to exchange for crops under loan can yield positive returns whenever the PCP is less than the loan repayment rate. Placing crops under loan in order to exchange them later with certificates is often referred to as "PIK-and-Roll." Exchanging certificates immediately, at the same time the crop is placed under loan, is a special case of PIK-and-Roll referred to as "Quick PIK." Producers net the difference between the loan rate and PCP, in addition to the price they receive when selling the crop.

In the example, the market price is 1 cent above the PCP, providing a gain of \$4.57 (rounded up to \$5 in the table). Thus, producers would have incentives to place their crops under loan for PIK-and-Roll purposes even if potential storage cost savings were negligible (that is, if they had no intention of forfeiting their loan collateral otherwise). In the example, the producer gains \$5 from the price arbitrage and \$123 from avoiding storage costs, for a gain of \$128 on the 457 bushels, or \$0.28 per bushel.

Producers who used options (1) or (2) either sold their certificates at market prices for cash, or exchanged them after 5 months at face value with the CCC. Most producers took advantage of the Quick-PIK option.

Most certificate exchanges were for corn producer loans. Exchanges for 9-month and FOR corn loans totaled 3.2 billion

bushels in 1986/87 and 4.9 billion in 1987/88. Generic certificates may not benefit producers when market prices are above the loan rate, as they do when market prices are at or below the loan rate. The reason is that certificates tend to trade at par (i.e., face value) when market prices are above the loan rate.

Producers are less likely to place crops under loan when market prices are above the loan rate. Producers with old-crop FOR loans may benefit by receiving certificates, when PCP's are above the loan rate but below loan redemption

rates; they can exchange their certificates for FOR collateral and then market their reacquired collateral. Since the loan collateral is reacquired with certificates at the PCP, accrued interest charges are effectively forgiven. Producers, however, would lose any further storage payments.

Generic certificates have increased loan placements because producers can place a crop under loan, exchange it for a certificate, and thus avoid storage costs. For more on certificates, see *Generic Certificates*, by Joseph W. Glauber, CED-ERS-USDA, AER No. 594, August 1988. [Ken Bailey and Joe Glauber (202) 786-1840]

## Statistical Indicators

### Summary Data

Table 1.—Key Statistical Indicators of the Food & Fiber Sector

	1988				1989				
	I	II	IV	Annual	I	II F	III F	IV F	Annual F
Prices received by farmers (1977=100)	133	142	144	138	149	141	137	--	140
Livestock & products	148	151	152	150	159	154	151	--	154
Crops	117	133	135	125	138	132	128	--	130
Prices paid by farmers, (1977=100)									
Production items	155	159	162	157	163	162	--	--	168
Commodities & services, interest, taxes, & wages	168	172	173	170	175	177	--	--	180
Cash receipts (\$ bil.) 1/	157	168	135	150	153	155	164	--	156
Livestock (\$ bil.)	75	83	78	78	81	80	83	--	81
Crops (\$ bil.)	82	85	57	72	78	77	81	--	76
Market basket (1982-84=100)									
Retail cost	115	118	118	116	123	--	--	--	--
Farm value	99	104	100	100	107	--	--	--	--
Spread	123	126	128	124	131	--	--	--	--
Farm value/retail cost (%)	30	30	30	30	30	--	--	--	--
Retail prices (1982-84=100)									
Food	117	119	120	118	123	123	124	--	--
At home	115	118	119	117	122	122	123	--	--
Away from home	121	123	123	122	125	127	128	--	--
Agricultural exports (\$ bil.) 2/	8.7	8.7	10.3	35.3	10.6	9.0	8.1	9.5	38.0
Agricultural imports (\$ bil.) 2/	5.0	5.1	5.2	21.0	5.5	5.1	5.2	5.2	21.0
Commercial production									
Red meat (mil. lb.)	9,683	10,139	10,269	39,763	9,594	9,995	9,905	9,908	39,402
Poultry (mil. lb.)	5,209	5,212	5,180	20,587	5,066	5,390	5,525	5,430	21,411
Eggs (mil. doz.)	1,428	1,421	1,446	5,771	1,391	1,385	1,390	1,435	5,601
Milk (bil. lb.)	37.9	36.0	35.4	145.5	36.6	38.7	37.0	36.1	148.4
Consumption, per capita									
Red meat and poultry (lb.)	54.2	54.9	56.4	219.2	52.8	55.0	55.1	56.7	218.6
Corn beginning stocks (mil. bu.) 3/	7,635.2	5,835.5	4,259.1	4,881.7	7,071.6	5,205.0	--	--	4,259.1
Corn use (mil. bu.) 3/	1,801.3	1,576.9	2,109.4	7,698.7	1,868.5	--	--	--	--
Prices 4/									
Choice steers--Omaha (\$/cwt)	72.81	66.92	70.14	69.54	73.85	72.74	68-74	69-75	71-74
Barrows & gilts--7 mths. (\$/cwt)	45.90	44.24	38.66	43.39	40.78	41-43	40-46	38-44	40-43
Broilers--12-city (cts./lb.)	55.6	66.1	57.9	56.3	59.4	68-70	65-71	55-61	62-65
Eggs--NY Gr. A large (cts./doz.)	53.3	72.9	67.3	62.1	78.6	73-75	72-78	72-78	74-77
Milk--all at plant (\$/cwt)	11.43	11.87	13.30	12.22	13.07	11.55-12.25	11.50-12.30	12.50-13.30	12.15-12.75
Wheat--Kansas City HRW (\$/bu.)	3.38	3.86	4.11	3.64	4.36	--	--	--	--
Corn--Chicago (\$/bu.)	2.29	2.84	2.75	2.46	2.75	--	--	--	--
Soybeans--Chicago (\$/bu.)	7.01	8.38	7.91	7.36	7.59	--	--	--	--
Cotton--Avg. spot mkt. (cts./lb.)	61.5	58.5	52.3	57.8	56.1	--	--	--	--

	1981	1982	1983	1984	1985	1986	1987	1988	1989 F
Gross cash income (\$ bil.)	146.0	150.6	150.4	155.2	156.7	152.0	160.5	170	168-173
Gross cash expenses (\$ bil.)	113.2	112.8	113.5	116.6	110.2	100.6	103.3	113	115-119
Net cash income (\$ bil.)	32.8	37.8	36.9	38.7	46.6	51.4	57.1	57	50-55
Net farm income (\$ bil.)	26.9	23.5	12.7	32.3	32.2	37.4	46.3	41	47-52
Farm real estate value									
s (1977=100) 5/	158	157	148	146	128	112	103	106	112

1/ Quarterly data seasonally adjusted at annual rates. 2/ Annual data based on Oct.-Sept. fiscal years ending with year indicated. 3/ Dec.-Feb. first quarter; Mar.-May second quarter; June-Aug. third quarter; Sept.-Nov. fourth quarter; Sept.-Aug. annual. Use includes exports & domestic disappearance. 4/ Simple averages. 5/ Nominal values as of February 1. F = forecast. -- = not available.



# U.S. and Foreign Economic Data

Table 2.—U.S. Gross National Product & Related Data

	Annual			1988				1989
	1986	1987	1988	I	II	III	IV R	I P
	\$ billion (quarterly data seasonally adjusted at annual rates)							
Gross national product	4,240.3	4,526.7	4,864.3	4,724.5	4,823.8	4,909.0	4,999.7	5,116.8
Personal consumption expenditures	2,807.5	3,012.1	3,227.5	3,128.1	3,194.6	3,261.2	3,326.4	3,380.4
Durable goods	406.5	421.9	451.1	437.8	449.8	452.9	464.0	461.5
Nondurable goods	943.6	997.9	1,046.9	1,016.2	1,036.6	1,060.8	1,073.9	1,093.7
Clothing & shoes	167.0	178.2	186.4	180.5	183.2	188.4	193.6	193.3
Food & beverages	501.0	526.4	551.5	535.9	546.3	558.9	564.9	579.4
Services	1,457.3	1,592.3	1,729.6	1,674.1	1,708.2	1,747.5	1,788.5	1,825.3
Gross private domestic investment	665.9	712.9	766.5	763.4	758.1	772.5	772.0	815.9
Fixed investment	650.4	673.7	718.1	698.1	714.4	722.8	737.2	754.2
Change in business inventories	15.5	39.2	48.4	65.3	43.7	49.7	34.7	61.8
Net exports of goods & services	-104.4	-123.0	-94.6	-112.1	-90.4	-80.0	-96.1	-90.5
Government purchases of goods & services	871.2	924.7	964.9	945.2	961.6	955.3	997.5	1,010.9
1982 \$ billion (quarterly data seasonally adjusted at annual rates)								
Gross national product	3,721.7	3,847.0	3,996.1	3,956.1	3,985.2	4,009.4	4,033.4	4,088.2
Personal consumption expenditures	2,455.2	2,521.0	2,592.2	2,559.8	2,579.0	2,603.8	2,626.2	2,634.8
Durable goods	385.0	390.9	409.7	401.1	410.6	410.4	416.5	413.1
Nondurable goods	879.5	890.5	899.6	892.7	893.6	904.5	907.4	911.8
Clothing & shoes	157.6	160.5	161.1	159.6	156.3	164.2	164.1	163.9
Food & beverages	448.0	450.4	453.3	451.4	453.2	453.8	454.8	460.4
Services	1,190.7	1,239.5	1,283.0	1,265.9	1,274.8	1,288.9	1,302.2	1,309.9
Gross private domestic investment	643.5	674.8	721.8	728.9	715.1	726.1	717.1	751.4
Fixed investment	628.1	640.4	679.3	662.9	679.7	686.6	688.0	697.6
Change in business inventories	15.4	34.4	42.5	66.0	35.3	39.5	29.1	53.8
Net exports of goods & services	-137.5	-128.9	-100.2	-109.0	-92.6	-93.9	-105.4	-95.6
Government purchases of goods & services	760.5	780.2	782.3	776.4	783.8	773.5	795.5	797.7
GNP implicit price deflator (% change)	2.7	3.3	3.4	1.7	5.5	4.7	5.3	3.9
Disposable personal income (\$ bil.)	3,019.6	3,209.7	3,471.8	3,375.6	3,421.5	3,507.5	3,582.5	3,696.4
Disposable per. income (1982 \$ bil.)	2,640.9	2,686.3	2,788.3	2,762.3	2,762.2	2,800.4	2,828.4	2,881.1
Per capita disposable per. income (\$)	12,496	13,157	14,103	13,760	13,919	14,231	14,497	14,925
Per capita dis. per. income (1982 \$)	10,929	11,012	11,326	11,260	11,237	11,362	11,445	11,633
U.S. population, total, incl. military abroad (mil.)	241.6	243.9	246.2	245.3	245.8	246.5	247.1	247.5
Civilian population (mil.)	239.4	241.7	244.1	243.1	243.6	244.2	244.7	245.3
	Annual			1988		1989		
	1986	1987	1988	Mar	Dec	Jan	Feb	Mar P
	Monthly data seasonally adjusted							
Industrial production (1977=100)	125.1	129.8	137.2	134.7	140.4	141.0	141.0	141.0
Leading economic indicators (1982=100)	132.1	139.6	142.5	140.8	144.8	145.9	145.4	144.4
Civilian employment (mil. persons)	109.6	112.4	115.0	114.1	116.0	116.7	116.9	117.1
Civilian unemployment rate (%)	7.0	6.2	5.5	5.6	5.3	5.4	5.1	5.0
Personal income (\$ bil. annual rate)	3,531.1	3,780.0	4,062.1	3,985.9	4,200.8	4,271.9	4,315.6	4,349.7
Money stock-M2 (daily avg.) (\$ bil.) 1/	2,811.2	2,909.9	3,069.3	2,969.3	3,069.3	3,065.7	3,069.5	3,079.1
Three-month Treasury bill rate (%)	5.98	5.82	6.69	5.69	8.09	8.29	8.48	8.83
AAA corporate bond yield (Moody's) (%)	9.02	9.38	9.71	9.39	9.57	9.62	9.64	9.80
Housing starts (1,000) 2/	1,805	1,621	1,488	1,528	1,577	1,678	1,476	1,397
Auto sales at retail, total (mil.)	11.4	10.3	10.6	10.6	11.5	9.9	9.9	9.5
Business inventory/sales ratio	1.55	1.50	1.51	1.50	1.49	1.48	1.51	--
Sales of all retail stores (\$ bil.)	121.2	125.5	134.4	133.8	137.9	140.0	139.3 P	139.4
Nondurable goods stores (\$ bil.)	73.9	76.9	83.6	81.5	85.2	86.2	86.4 P	86.6
Food stores (\$ bil.)	24.6	25.3	27.6	27.0	27.9	28.7	28.8 P	28.9
Eating & drinking places (\$ bil.)	12.1	12.7	13.1	12.7	13.7	13.8	13.9 P	13.9
Apparel & accessory stores (\$ bil.)	6.7	7.1	7.0	6.6	7.2	7.2	7.0 P	6.9

1/ Annual data as of December of the year listed. 2/ Private, including farm. R = revised. P = preliminary. -- = not available.

Information contact: James Malley (202) 786-1782.

Table 3.—Foreign Economic Growth, Inflation, & Export Earnings

	Average 1975-79	1980	1981	1982	1983	1984	1985	1986	1987	1988 P	1989 F	1990 F
Annual percent change												
Total foreign												
Real GNP	3.7	2.6	1.6	1.7	2.0	3.2	3.0	2.8	3.1	4.0	3.1	3.1
CPI	14.0	17.1	15.8	14.7	18.8	22.8	22.6	11.8	16.6	34.4	50.6	67.2
Export earnings	14.6	22.2	-2.7	-7.0	-2.6	5.7	1.7	11.2	18.7	15.9	9.8	9.3
Developed less U.S.												
Real GNP	3.1	2.4	1.4	1.1	1.9	3.4	3.3	2.4	3.1	4.0	3.1	2.6
CPI	9.4	10.9	9.6	8.0	6.0	5.1	4.7	2.8	2.6	2.9	4.0	3.4
Export earnings	14.9	17.0	-3.3	-4.3	-0.5	6.3	4.6	19.4	17.6	12.2	11.0	9.1
Centrally planned												
Real GNP	3.5	1.5	2.1	2.7	2.7	1.9	1.3	3.2	1.4	3.3	2.5	2.6
Export earnings	16.1	16.5	3.4	6.0	8.2	1.5	-5.1	7.3	6.7	5.2	5.6	8.1
Latin America												
Real GNP	5.1	5.4	0.9	-0.5	-3.2	3.5	3.7	4.1	2.8	-0.1	-1.1	3.7
CPI	53.7	64.0	67.9	75.1	130.0	177.9	184.9	88.9	140.5	318.0	484.4	673.1
Export earnings	12.8	30.1	5.3	-10.1	-0.8	6.7	-7.3	-14.2	8.8	21.0	1.7	1.2
Africa & Middle East												
Real GNP	6.4	1.3	0.0	1.4	0.1	1.1	0.0	-1.2	1.4	3.5	2.2	3.4
CPI	16.4	24.6	17.3	12.9	16.7	19.4	11.2	11.7	13.5	24.2	21.9	15.4
Export earnings	13.2	37.9	-9.2	-19.7	-17.5	-6.1	-6.2	-19.0	23.6	3.9	4.3	4.8
Asia												
Real GNP	6.8	6.3	6.6	3.6	6.6	5.4	4.0	5.8	6.7	8.2	6.6	5.6
CPI	8.4	16.4	14.1	7.3	7.7	8.5	5.2	4.5	5.4	6.8	7.3	7.7
Export earnings	18.6	27.8	6.8	-0.3	3.4	13.1	-0.8	6.0	28.1	25.8	12.4	11.5

P = preliminary. F = forecast.

Information contact: Timothy Baxter (202) 786-1706.

## Farm Prices

Table 4.—Indexes of Prices Received & Paid by Farmers, U.S. Average

	Annual			1988			1989			
	1986	1987	1988	Apr	Nov	Dec	Jan	Feb	Mar R	Apr P
1977=100										
Prices received										
All farm products	123	127	138	130	144	145	149	148	149	146
All crops	107	106	125	112	136	136	140	138	136	138
Food grains	109	103	138	120	156	157	160	161	162	160
Feed grains & hay	98	85	120	100	133	134	137	137	138	137
Feed grains	96	81	117	95	130	130	133	132	132	129
Cotton	91	98	95	99	93	91	89	88	93	97
Tobacco	138	129	132	126	145	145	145	143	143	143
Oil-bearing crops	77	79	107	95	112	113	116	112	112	108
Fruit, all	170	182	181	164	194	192	177	176	158	166
Fresh market 1/	178	193	194	176	208	207	190	188	166	177
Commercial vegetables	130	144	142	133	146	146	179	167	149	167
Fresh market	123	147	137	125	144	147	185	163	146	165
Potatoes & dry beans	114	126	124	104	154	158	163	171	194	212
Livestock & products	138	146	150	148	151	154	158	158	161	154
Meat animals	145	163	168	172	163	166	174	176	176	169
Dairy products	129	129	126	119	138	139	138	135	131	128
Poultry & eggs	128	107	118	98	129	126	129	128	150	139
Prices paid										
Commodities & services, interest, taxes, & wage rates	159	161	170	168	--	--	175	--	--	177
Production items	147	147	157	155	--	--	163	--	--	165
Feed	108	103	128	112	--	--	141	--	--	140
Feeder livestock	153	179	191	196	--	--	202	--	--	185
Seed	148	148	150	150	--	--	150	--	--	170
Fertilizer	124	118	130	132	--	--	133	--	--	141
Agricultural chemicals	127	124	126	128	--	--	128	--	--	133
Fuels & energy	162	161	166	165	--	--	166	--	--	185
Farm & motor supplies	144	144	148	147	--	--	153	--	--	155
Autos & trucks	198	208	215	215	--	--	216	--	--	226
Tractors & self-propelled machinery	174	174	181	179	--	--	188	--	--	192
Other machinery	182	185	198	199	--	--	203	--	--	209
Building & fencing	136	137	138	137	--	--	139	--	--	140
Farm services & cash rent	145	146	147	147	--	--	151	--	--	151
Interest payable per acre on farm real estate debt	211	190	186	186	--	--	190	--	--	190
Taxes payable per acre on farm real estate	138	139	142	142	--	--	187	--	--	144
Wage rates (seasonally adjusted)	160	166	172	174	--	--	187	--	--	187
Production items, interest, taxes, & wage rates	150	151	161	158	--	--	166	--	--	167
Ratio, prices received to prices paid (%2/	77	79	81	77	83	84	85	85	85	82
Prices received (1910-14=100)	561	578	630	595	657	663	682	677	679	669
Prices paid, etc. (parity index) (1910-14=100)	1,093	1,110	1,167	1,155	--	--	1,207	--	--	1,220
Parity ratio (1910-14=100) (%2/	51	52	54	52	55	56	57	--	--	55

1/ Fresh market for noncitrus; fresh market & processing for citrus. 2/ Ratio of index of prices received for all farm products to index of prices paid for commodities and services, interest, taxes, and wage rates. Ratio derived using the most recent prices paid index. Prices paid data are quarterly and will be published in January, April, July, and October. P = preliminary. R = revised.  
-- = not available.

Information contact: National Agricultural Statistics Service (202) 447-5446.



Table 5.—Prices Received by Farmers, U.S. Average

	Annual 1/			1988			1989			
	1986	1987	1988	Apr	Nov	Dec	Jan	Feb	Mar R	Apr P
Crops										
All wheat (\$/bu.)	2.71	2.55	3.33	2.79	3.88	3.94	4.01	4.03	4.07	4.03
Rice, rough (\$/cwt)	5.04	4.59	7.79	8.92	6.72	6.60	6.47	6.59	6.47	6.34
Corn (\$/bu.)	1.96	1.56	2.27	1.88	2.51	2.53	2.60	2.58	2.59	2.54
Sorghum (\$/cwt)	3.11	2.56	3.66	2.94	3.98	3.99	4.09	4.05	4.03	4.06
All hay, baled (\$/ton)	61.60	62.40	78.30	71.40	87.50	89.90	91.20	93.70	98.10	104.00
Soybeans (\$/bu.)	5.00	5.08	7.21	6.39	7.43	7.53	7.69	7.41	7.51	7.14
Cotton, upland (cts./lb.)	54.8	59.6	57.2	59.9	56.7	55.3	53.9	52.9	56.3	59.0
Potatoes (\$/cwt)	5.03	4.35	5.49	4.10	5.74	5.86	6.13	6.42	7.45	8.37
Lettuce (\$/cwt)	11.90	14.70	15.20	7.03	12.60	19.00	18.50	12.60	13.60	9.92
Tomatoes (\$/cwt)	25.10	26.00	26.80	29.90	40.60	19.90	43.40	45.20	34.10	54.60
Onions (\$/cwt)	10.90	12.50	9.99	16.80	9.37	14.00	12.30	10.80	9.70	9.71
Dry edible beans (\$/cwt)	19.10	17.67	22.38	16.40	29.70	30.30	29.60	31.30	33.00	33.00
Apples for fresh use (cts./lb.)	19.8	17.6	16.7	11.0	18.9	17.2	17.9	18.1	16.1	14.6
Pears for fresh use (\$/ton)	369.00	227.00	347.00	249.00	373.00	299.00	286.00	292.00	328.00	290.00
Oranges, all uses (\$/box) 2/	4.27	5.03	6.56	6.79	5.82	6.50	6.20	6.21	5.27	6.64
Grapefruit, all uses (\$/box) 2/	4.29	4.96	5.39	4.92	4.77	4.71	3.72	3.34	3.36	3.28
Livestock										
Beef cattle (\$/cwt)	52.80	61.40	66.80	69.00	66.70	67.20	70.60	71.50	72.00	70.10
Calves (\$/cwt)	60.90	78.10	89.80	93.20	87.80	88.60	92.80	95.90	94.00	90.70
Hogs (\$/cwt)	50.10	50.80	42.50	41.90	36.20	39.70	40.90	40.40	39.30	36.30
Lambs (\$/cwt)	69.10	77.90	69.50	74.80	66.30	68.60	67.40	68.40	72.50	71.10
All milk, sold to plants (\$/cwt)	12.50	12.50	12.20	11.60	13.40	13.50	13.40	13.10	12.70	12.40
Milk, manuf. grade (\$/cwt)	11.46	11.37	11.15	10.60	12.50	12.60	12.20	11.60	11.30	11.20
Broilers (cts./lb.)	34.5	28.8	34.0	28.3	35.0	35.5	35.3	35.2	38.7	38.9
Eggs (cts./doz.) 3/	61.2	53.1	53.2	45.7	59.4	59.7	63.9	62.1	80.1	65.3
Turkeys (cts./lb.)	44.4	34.3	36.5	28.4	47.6	37.6	35.4	38.3	40.0	42.3
Wool (cts./lb.) 4/	64.3	87.1	138.0	153.00	119.0	116.0	107.0	123.0	130.0	135.00

1/ Calendar year averages, except for potatoes, dry edible beans, apples, oranges, & grapefruit, which are crop years.  
2/ Equivalent on-tree returns. 3/ Average of all eggs sold by producers including hatching eggs & eggs sold at retail.  
4/ Average local market price, excluding incentive payments. P = preliminary. R = revised.

Information contact: National Agricultural Statistics Service (202) 447-5446.

Producer & Consumer Prices

Table 6.—Consumer Price Index for All Urban Consumers, U.S. Average (Not Seasonally Adjusted)

	Annual	1988						1989		
	1988	Mar	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
1982-84=100										
Consumer Price Index, all items	118.3	116.5	119.0	119.8	120.2	120.3	120.5	121.1	121.6	122.3
Consumer Price Index, less food	118.3	116.6	118.9	119.7	120.2	120.3	120.4	120.8	121.3	122.0
All food	118.2	115.9	119.4	120.2	120.3	120.2	120.7	122.2	122.9	123.5
Food away from home	121.8	120.2	122.5	123.0	123.4	123.7	124.1	124.7	125.2	125.7
Food at home	116.6	113.9	118.1	119.0	119.0	118.7	119.1	121.2	122.0	122.7
Meats 1/	112.2	110.9	113.2	113.4	113.0	113.0	112.7	114.0	114.3	115.5
Beef & veal	112.1	109.8	112.7	113.6	113.7	114.7	114.6	116.0	116.6	119.0
Pork	112.5	112.6	114.1	113.7	111.8	110.0	109.6	111.5	110.9	111.0
Poultry	120.7	109.1	131.7	133.4	129.4	127.2	127.1	128.8	128.4	130.3
Fish	137.4	136.0	137.9	136.0	137.4	138.7	138.9	144.0	142.9	144.3
Eggs	93.6	87.9	104.2	103.1	105.5	101.2	99.6	112.0	106.1	122.9
Dairy products 2/	108.4	107.2	108.2	108.9	109.9	110.6	111.4	112.6	113.4	113.8
Fats & oils 3/	113.1	110.3	114.9	115.9	117.1	117.1	118.5	119.6	120.5	120.4
Fresh fruit	143.0	133.8	150.1	153.3	149.7	144.3	143.2	145.4	150.0	149.5
Processed fruit	122.0	119.4	123.4	123.8	124.3	125.0	124.4	125.6	125.5	124.7
Fresh vegetables	129.3	125.6	125.9	132.1	129.4	126.7	133.0	141.4	144.4	140.2
Potatoes	119.1	108.5	132.0	124.8	125.2	126.0	128.5	130.8	138.3	146.6
Processed vegetables	112.2	107.9	113.9	116.4	117.9	118.1	118.9	120.9	121.8	122.7
Cereals & bakery products	122.1	118.9	124.0	124.7	125.6	125.9	126.6	127.9	128.9	129.7
Sugar & sweets	114.0	112.6	114.8	115.6	116.0	115.9	116.7	117.2	117.8	118.0
Beverages, nonalcoholic	107.5	107.7	107.0	107.4	108.1	108.2	107.8	109.6	111.3	111.3
Apparel commodities less footwear	114.4	113.7	111.3	117.0	119.9	119.1	116.8	113.5	113.4	118.1
Footwear	109.9	107.3	107.4	112.2	115.9	114.5	113.5	112.2	112.7	114.1
Tobacco & smoking products	145.8	142.8	148.6	148.9	149.3	149.7	149.9	157.0	158.5	159.2
Beverages, alcoholic	118.6	117.4	119.3	119.6	119.8	119.9	119.9	120.3	121.1	121.8

1/ Beef, veal, lamb, pork, & processed meat. 2/ Includes butter. 3/ Excludes butter.

Information contact: Ralph Parlett (202) 786-1870.

Table 7.—Producer Price Indexes, U.S. Average (Not Seasonally Adjusted)

	Annual			1988				1989		
	1986	1987	1988	Mar	Oct	Nov R	Dec	Jan	Feb	Mar
	1982=100									
Finished goods 1/	103.2	105.4	108.0	106.3	109.4	109.8	110.0	111.0	111.7	112.2
Consumer foods	107.2	109.5	112.6	110.1	114.6	114.9	115.1	116.5	117.3	118.4
Fresh fruit	112.9	112.0	112.7	106.8	111.8	125.1	116.8	107.8	110.0	106.4
Fresh & dried vegetables	97.8	103.7	105.4	98.2	111.9	115.2	110.5	109.3	133.1	123.8
Dried fruit	91.9	95.0	99.1	97.8	97.4	100.7	100.7	101.1	101.1	103.0
Canned fruit & juice	111.0	115.3	120.1	119.5	120.6	121.8	121.5	121.8	120.7	122.1
Frozen fruit & juice	103.0	113.3	129.9	131.1	129.6	130.0	129.2	127.3	122.0	119.8
Fresh veg. excl. potatoes	99.3	99.0	100.4	95.8	101.0	103.8	96.7	93.4	119.9	111.0
Canned veg. & juices	101.2	103.5	108.3	103.5	114.6	116.5	118.0	119.4	119.7	120.3
Frozen vegetables	106.6	107.3	108.5	107.0	111.4	111.9	112.7	113.1	114.3	114.9
Potatoes	104.0	120.1	114.1	111.6	134.6	140.5	144.3	150.7	178.3	162.0
Eggs	99.5	87.6	88.6	79.7	107.4	99.7	100.3	116.5	96.7	135.8
Bakery products	116.6	118.4	126.4	123.7	130.0	130.3	130.6	132.5	133.2	133.0
Meats	93.9	100.4	99.9	98.7	98.2	97.4	98.8	102.6	102.4	103.7
Beef & veal	88.1	95.5	101.4	101.0	102.4	103.6	104.7	107.5	108.1	111.3
Pork	99.9	104.9	95.2	91.9	88.3	84.0	87.3	95.0	92.9	91.9
Processed poultry	116.7	103.4	111.4	98.6	122.7	118.3	114.4	115.7	115.0	123.9
Fish	124.9	140.0	151.7	151.2	147.4	151.9	162.1	161.3	161.8	161.4
Dairy products	99.9	101.6	102.2	100.1	104.9	105.5	106.3	107.3	106.8	106.3
Processed fruits & vegetables	104.9	108.6	113.8	111.8	116.5	117.9	118.5	119.1	119.1	119.4
Shortening & cooking oil	103.3	103.9	118.9	114.3	120.9	118.2	118.7	117.0	115.7	118.4
Consumer finished goods less foods	98.4	100.7	103.1	101.5	104.1	104.6	104.8	105.8	106.6	106.9
Beverages, alcoholic	110.1	110.3	111.9	115.7	112.3	112.3	112.1	112.1	114.0	115.0
Soft drinks	109.5	111.8	114.1	113.8	115.6	116.4	115.3	115.7	116.8	117.7
Apparel	106.3	108.3	111.7	110.7	112.7	112.8	113.2	113.7	114.0	113.8
Footwear	106.8	109.3	115.2	114.0	116.4	116.9	117.4	118.1	118.8	119.5
Tobacco products	142.4	154.6	171.9	166.7	175.6	175.5	184.8	187.5	187.7	187.4
Intermediate materials 2/	99.1	101.5	107.1	104.7	108.6	108.9	109.5	110.5	110.9	111.6
Materials for food manufacturing	98.4	100.8	105.9	101.6	108.3	107.7	108.3	109.9	109.8	111.4
Flour	94.5	92.9	105.7	93.9	114.6	113.1	113.2	114.9	114.3	116.1
Refined sugar 3/	103.2	106.4	108.6	106.7	112.3	112.2	112.8	113.2	114.4	116.1
Crude vegetable oils	84.8	84.2	116.8	101.7	115.1	107.6	108.4	108.9	103.1	109.9
Crude materials 4/	87.7	93.7	95.9	94.1	95.9	94.5	97.0	101.0	101.0	103.1
Foodstuffs & feedstuffs	93.2	96.2	106.0	99.8	111.9	108.0	109.5	112.4	111.0	113.7
Fruits & vegetables 5/	103.9	106.8	108.1	101.5	111.3	119.0	112.7	108.1	122.3	115.6
Grains	79.2	71.1	97.9	80.6	114.2	107.4	108.9	115.2	111.3	115.1
Livestock	91.8	102.0	103.0	106.3	101.8	98.3	100.5	103.9	104.1	106.2
Poultry, live	129.6	101.2	121.5	96.9	141.0	128.0	121.7	122.4	121.5	138.5
Fibers, plant & animal	88.3	106.4	98.4	103.2	89.7	93.1	93.9	95.8	94.8	98.4
Fluid milk	90.9	91.8	89.1	86.7	94.3	96.5	97.5	97.0	95.4	92.3
Oilseeds	91.4	99.2	134.0	112.6	141.1	134.7	137.5	143.6	133.2	140.0
Tobacco, leaf	89.7	85.7	87.2	87.2	93.1	94.4	94.4	93.7	94.4	93.1
Sugar, raw cane	104.9	110.2	111.9	111.4	110.7	110.2	112.0	111.0	111.9	112.3
All commodities	100.1	102.8	106.9	104.9	108.2	108.3	109.0	110.3	110.8	111.5
Industrial commodities	99.9	102.5	106.3	104.7	107.1	107.5	108.1	109.4	110.0	110.6
All foods 6/	105.5	107.8	111.5	108.6	113.5	113.8	114.2	115.6	116.3	117.5
Farm products & processed foods & feeds	101.2	103.7	110.0	105.8	113.5	112.4	112.9	114.8	114.6	116.2
Farm products	92.9	95.5	104.8	98.2	110.9	107.9	108.6	111.4	110.5	113.4
Processed foods & feeds 6/	105.4	107.9	112.8	109.6	115.0	114.8	115.1	116.7	116.8	117.8
Cereal & bakery products	111.0	112.6	122.9	119.8	126.4	126.1	126.3	128.5	129.4	129.1
Sugar & confectionery	109.6	112.6	114.6	113.0	116.5	116.8	116.7	116.9	118.1	118.7
Beverages	114.5	112.5	114.3	113.9	115.3	115.8	115.7	116.0	117.6	118.7

1/ Commodities ready for sale to ultimate consumer. 2/ Commodities requiring further processing to become finished goods. 3/ All types & sizes of refined sugar. 4/ Products entering market for the first time that have not been manufactured at that point. 5/ Fresh & dried. 6/ Includes all raw, intermediate, & processed foods (excludes soft drinks, alcoholic beverages, & manufactured animal feeds). R = revised.

Information contact: Bureau of Labor Statistics (202) 523-1913.



# Farm-Retail Price Spreads

Table 8.—Farm-Retail Price Spreads

	Annual				1988				1989		
	1985	1986	1987	1988	Mar	Oct	Nov	Dec	Jan	Feb	Mar
<b>Market basket 1/</b>											
Retail cost (1982-84=100)	104.1	106.3	111.6	116.5	113.5	119.3	118.9	119.5	121.5	122.3	122.9
Farm value (1982-84=100)	96.2	94.9	97.1	100.3	95.7	103.1	103.9	102.9	105.6	106.5	107.1
Farm-retail spread (1982-84=100)	108.3	112.5	119.4	125.3	123.1	128.0	127.0	128.4	130.0	130.8	131.5
Farm value-retail cost (%)	32.4	31.2	30.5	30.1	29.5	30.3	30.6	30.2	30.5	30.5	30.5
<b>Meat products</b>											
Retail cost (1982-84=100)	98.9	102.0	109.6	112.2	110.9	113.0	113.0	112.7	114.0	114.3	115.5
Farm value (1982-84=100)	91.3	94.3	101.2	99.5	100.2	97.6	96.3	97.7	102.7	102.6	103.7
Farm-retail spread (1982-84=100)	106.7	109.8	118.3	125.2	121.9	128.8	129.0	128.1	125.6	126.3	127.7
Farm value-retail cost (%)	46.8	46.8	46.7	44.9	45.8	43.7	43.7	43.9	45.6	45.5	45.5
<b>Dairy products</b>											
Retail cost (1982-84=100)	103.2	103.3	105.9	108.4	107.2	109.9	110.6	111.4	112.6	113.4	113.8
Farm value (1982-84=100)	95.2	92.6	93.3	90.4	89.3	94.2	96.3	97.3	97.9	97.7	95.3
Farm-retail spread (1982-84=100)	110.5	113.3	117.5	124.9	123.7	124.4	123.8	124.4	126.1	127.9	130.9
Farm value-retail cost (%)	44.2	43.0	42.3	40.0	40.0	40.3	41.8	41.9	41.7	41.3	40.2
<b>Poultry</b>											
Retail cost (1982-84=100)	106.2	114.2	112.6	120.7	109.1	129.4	127.2	127.1	128.8	128.4	130.3
Farm value (1982-84=100)	105.9	115.1	95.8	110.4	88.2	124.8	117.9	114.4	112.8	113.9	124.3
Farm-retail spread (1982-84=100)	106.6	113.3	134.2	132.6	133.2	134.7	137.9	141.7	147.2	145.1	137.3
Farm value-retail cost (%)	53.3	53.9	44.6	49.0	43.3	51.6	49.6	48.2	46.9	47.5	51.0
<b>Eggs</b>											
Retail cost (1982-84=100)	91.0	97.2	91.5	93.6	87.9	105.5	101.2	99.6	112.0	106.1	122.9
Farm value (1982-84=100)	85.7	92.4	76.8	76.7	70.8	87.6	89.2	90.1	96.6	92.3	128.0
Farm-retail spread (1982-84=100)	100.4	106.0	117.9	123.9	118.7	137.6	122.8	116.7	139.7	130.9	113.7
Farm value-retail cost (%)	60.5	61.0	53.9	52.7	51.7	53.4	56.6	58.1	55.4	55.9	66.9
<b>Cereal &amp; bakery products</b>											
Retail cost (1982-84=100)	107.9	110.9	114.8	122.1	118.9	125.6	125.9	126.6	127.9	128.9	129.7
Farm value (1982-84=100)	94.3	76.3	71.0	92.3	83.9	98.8	98.9	101.0	102.0	101.0	104.3
Farm-retail spread (1982-84=100)	109.8	115.7	120.9	126.3	123.8	129.3	129.7	130.2	131.5	132.8	133.2
Farm value-retail cost (%)	10.7	8.4	7.6	9.3	8.6	9.6	9.6	9.8	9.8	9.6	9.9
<b>Fresh fruits</b>											
Retail cost (1982-84=100)	118.4	120.4	135.6	145.4	135.2	151.9	147.6	147.0	150.1	154.3	151.6
Farm value (1982-84=100)	110.8	103.8	113.9	113.3	101.9	115.5	123.1	110.3	105.0	101.5	93.4
Farm-retail spread (1982-84=100)	121.8	128.0	145.7	160.2	150.6	168.7	158.9	164.0	170.9	178.7	178.5
Farm value-retail cost (%)	29.6	27.4	26.5	24.6	23.8	24.0	26.4	23.7	22.1	20.8	19.5
<b>Fresh vegetables</b>											
Retail costs (1982-84=100)	103.5	107.7	121.6	129.3	125.6	129.4	126.7	133.0	141.4	144.4	140.2
Farm value (1982-84=100)	93.1	90.0	112.0	105.8	101.0	97.7	111.4	108.5	120.4	144.5	116.3
Farm-retail spread (1982-84=100)	108.9	116.8	126.5	141.3	138.2	145.7	134.6	145.6	152.2	144.3	152.5
Farm value-retail cost (%)	30.5	28.4	31.3	27.8	27.3	25.6	29.9	27.7	28.9	34.0	28.2
<b>Processed fruits &amp; vegetables</b>											
Retail cost (1982-84=100)	107.0	105.3	109.0	117.6	114.3	121.4	121.9	121.9	123.4	123.7	123.7
Farm value (1982-84=100)	117.7	101.5	111.1	136.5	129.5	144.8	145.0	136.8	137.5	134.4	132.8
Farm-retail spread (1982-84=100)	103.7	106.4	108.3	111.7	109.6	114.1	114.7	117.3	119.0	120.3	120.9
Farm value-retail costs (%)	26.2	22.9	24.2	27.6	26.9	28.4	28.3	26.7	26.5	25.8	25.5
<b>Fats &amp; oils</b>											
Retail cost (1982-84=100)	108.9	106.5	108.1	113.1	110.3	117.1	117.1	118.5	119.6	120.5	120.4
Farm value (1982-84=100)	104.3	76.2	74.1	103.3	93.0	100.9	99.2	101.0	98.9	99.2	103.0
Farm-retail spread (1982-84=100)	110.6	117.6	120.6	116.7	116.6	123.1	123.7	124.9	127.2	128.3	126.8
Farm value-retail cost (%)	25.8	19.2	18.6	24.6	22.7	23.2	22.8	22.9	22.2	22.2	23.0

	Annual				1988				1989		
	1985	1986	1987	1988	Mar	Oct	Nov	Dec	Jan	Feb	Mar
<b>Beef, Choice</b>											
Retail price 2/ (cts./lb.)	232.6	230.7	242.5	254.7	248.5	257.8	260.4	260.0	264.3	265.2	269.5
Net carcass value 3/ (cts.)	135.2	133.1	145.3	153.9	154.0	155.4	156.0	158.1	159.8	160.9	167.4
Net farm value 4/ (cts.)	126.8	124.4	137.9	147.4	148.6	148.8	151.5	154.0	155.8	157.6	163.9
Farm-retail spread (cts.)	105.8	106.3	104.6	107.3	99.9	109.0	108.9	106.0	108.5	107.6	105.6
Carcass-retail spread 5/ (cts.)	97.4	97.6	97.2	100.8	94.5	102.5	104.4	101.9	104.5	104.3	102.1
Farm-carcass spread 6/ (cts.)	8.4	8.7	7.4	6.5	5.5	6.5	4.5	4.1	4.0	3.3	3.5
Farm value-retail price (%)	55	54	57	58	60	58	58	59	59	59	61
<b>Pork</b>											
Retail price 2/ (cts./lb.)	162.0	178.4	188.4	183.4	183.3	181.6	178.0	177.4	181.1	179.3	179.7
Wholesale value 3/ (cts.)	101.1	110.9	113.0	101.0	103.5	95.8	92.2	97.8	94.3	92.7	91.8
Net farm value 4/ (cts.)	71.4	82.4	82.7	69.4	68.6	62.2	58.3	66.0	66.7	65.2	63.3
Farm-retail spread (cts.)	90.6	96.0	105.7	114.0	114.7	119.4	119.7	111.4	114.4	114.1	116.4
Wholesale-retail spread 5/ (cts.)	60.9	67.5	75.4	82.4	79.8	85.8	85.8	79.6	86.8	86.6	87.9
Farm-wholesale spread 6/ (cts.)	29.7	28.5	30.3	31.6	34.9	33.6	33.9	31.8	27.6	27.5	28.5
Farm value-retail price (%)	44	46	44	38	37	34	33	37	37	36	35

1/ Retail costs are based on indexes of retail prices for domestically produced farm foods from the CPI-U published monthly by the Bureau of Labor Statistics. The farm value is the payment to farmers for quantity of farm product equivalent to retail unit, less allowance for byproduct. Farm values are based on prices at first point of sale & may include marketing charges such as grading & packing for some commodities. The farm-retail spread, the difference between the retail price & the farm value, represents charges for assembling, processing, transporting, distributing these foods. 2/ Estimated weighted average price of retail cuts from pork & choice yield grade 3 beef carcasses. Retail cut prices from BLS. 3/ Value of carcass quantity (beef) & wholesale cuts (pork) equivalent to 1 lb. of retail cuts; beef adjusted for value of fat & bone byproducts. 4/ Market value to producer for quantity of live animal equivalent to 1 lb. of retail cuts minus value of byproducts. 5/ Represents charges for retailing & other marketing services such as fabricating, wholesaling, in-city transportation. 6/ Represents charges made for livestock marketing, processing, & transportation to city where consumed.

Information contacts: Denis Dunham (202) 786-1870, Ron Gustafson (202) 786-1286.

Table 9.—Price Indexes of Food Marketing Costs

	Annual			1987	1988					1989
	1986	1987	1988	IV	I	II	III	IV	I P	
	1967=100*									
Labor--hourly earnings & benefits	359.4	361.1	368.7	362.4	366.5	367.9	367.3	372.4	376.0	
Processing	363.4	370.2	379.7	371.7	377.8	380.9	379.2	381.5	388.8	
Wholesaling	376.3	384.2	394.3	387.1	390.6	392.0	395.1	400.2	404.9	
Retailing	347.9	341.7	346.6	342.1	344.5	344.2	343.2	351.1	351.8	
Packaging & containers	317.4	329.8	350.7	335.8	341.0	347.8	355.6	358.4	362.4	
Paperboard boxes & containers	269.1	288.0	308.1	296.5	299.1	307.1	311.4	314.6	319.1	
Metal cans	430.1	433.0	442.3	433.5	443.9	443.9	443.3	438.1	438.1	
Paper bags & related products	307.9	331.3	372.2	342.4	351.1	359.9	382.2	395.7	408.3	
Plastic films & bottles	274.8	280.2	305.7	284.7	288.3	302.4	315.0	317.0	318.8	
Glass containers	398.0	402.0	398.9	400.1	400.0	398.7	398.6	398.2	401.2	
Metal foil	209.3	222.1	266.9	241.2	249.0	256.9	277.5	284.1	282.9	
Transportation services	391.7	385.0	403.5	385.3	399.6	405.2	404.5	404.8	403.2	
Advertising	339.7	361.1	384.6	367.4	377.9	382.8	386.6	391.2	403.2	
Fuel & power	590.2	596.7	578.2	602.4	575.7	585.1	580.9	571.1	601.1	
Electric	457.9	450.5	453.3	444.7	440.3	446.8	474.9	451.3	451.3	
Petroleum	499.8	561.4	502.0	601.4	526.7	534.0	472.4	474.7	560.5	
Natural gas	1,096.9	1,049.0	1,042.1	1,027.6	1,021.3	1,042.7	1,049.1	1,055.3	1,073.1	
Communications, water & sewage	236.1	238.4	241.3	239.5	239.9	241.0	241.3	243.0	244.5	
Rent	273.8	279.4	280.6	281.2	280.6	280.5	280.7	282.9	282.9	
Maintenance & repair	368.5	382.6	395.9	387.9	391.2	395.3	397.5	399.7	404.8	
Business services	334.1	346.1	356.8	350.6	352.0	356.9	358.5	360.8	362.6	
Supplies	282.8	286.8	305.6	290.2	294.9	302.2	310.2	315.2	321.3	
Property taxes & insurance	382.3	399.6	419.9	408.3	412.8	416.2	422.5	428.3	431.4	
Interest, short-term	125.1	132.9	150.3	143.5	131.4	142.0	159.8	168.0	184.8	
Total marketing cost index	354.9	360.4	371.4	363.4	367.0	370.8	372.5	375.6	380.5	

\* Indexes measure changes in employee earnings & benefits & in prices of supplies & services used in processing, wholesaling, & retailing U.S. farm foods purchased for at-home consumption. P = preliminary.

Information contact: Denis Dunham (202) 786-1870.



# Livestock & Products

Table 10.—U.S. Meat Supply & Use

	Beg. stocks	Pro- duc- tion 1/	Im- ports	Total supply	Ex- ports	Ship- ments	Ending stocks	Consumption		Primary market price 3/
								Total	Per capita 2/ Pounds	
	Million pounds 4/									
<b>Beef</b>										
1986	420	24,371	2,129	26,919	521	52	412	25,935	78.4	57.75
1987	412	23,566	2,269	26,247	604	52	386	25,205	73.4	64.60
1988 P	386	23,589	2,379	26,354	680	61	422	25,191	72.7	69.54
1989 F	422	23,269	2,215	25,906	735	60	325	24,786	70.9	71-74
<b>Pork</b>										
1986	289	14,063	1,122	15,474	86	132	248	15,008	58.6	51.19
1987	248	14,374	1,195	15,817	109	124	347	15,237	59.1	51.69
1988 P	347	15,684	1,137	17,168	195	135	413	16,425	63.1	43.39
1989 F	413	15,648	1,025	17,086	165	140	400	16,381	62.5	40-43
<b>Veal 5/</b>										
1986	11	524	27	562	5	1	7	550	1.9	60.89
1987	7	429	24	460	7	1	4	449	1.5	78.05
1988 P	4	396	27	427	10	1	5	411	1.4	89.79
1989 F	5	390	0	395	0	1	4	390	1.3	87-93
<b>Lamb &amp; mutton</b>										
1986	13	338	41	392	2	2	13	375	1.4	70.26
1987	13	315	44	372	2	2	8	360	1.3	78.09
1988 P	8	335	51	394	1	1	6	386	1.4	68.84
1989 F	6	336	55	397	1	0	7	389	1.4	64-67
<b>Total red meat</b>										
1986	733	39,296	3,319	43,348	613	187	680	41,868	140.2	--
1987	679	38,684	3,533	42,897	722	179	744	41,251	135.3	--
1988 P	745	40,004	3,594	44,343	886	198	846	42,413	138.6	--
1989 F	846	39,643	3,295	43,784	901	201	736	41,946	136.1	--
<b>Broilers</b>										
1986	27	14,316	0	14,342	566	149	24	13,603	56.3	56.9
1987	24	15,594	0	15,618	752	151	25	14,691	60.2	47.4
1988 P	25	16,180	0	16,205	765	151	36	15,253	62.0	56.3
1989 F	36	16,933	0	16,969	750	140	30	16,049	64.6	62-65
<b>Mature chicken</b>										
1986	144	627	0	771	16	3	163	589	2.4	--
1987	163	650	0	814	15	2	188	608	2.5	--
1988 P	188	638	0	826	26	3	157	641	2.6	--
1989 F	157	628	0	784	19	4	150	611	2.5	--
<b>Turkeys</b>										
1986	150	3,271	0	3,422	27	4	178	3,212	13.3	72.2
1987	178	3,828	0	4,006	33	4	282	3,686	15.1	57.8
1988 P	282	3,968	0	4,250	51	2	250	3,948	16.0	61.3
1989 F	250	4,047	0	4,296	38	4	175	4,079	16.4	69-72
<b>Total poultry</b>										
1986	321	18,215	0	18,535	609	156	365	17,405	72.0	--
1987	365	20,072	0	20,437	800	157	495	18,985	77.8	--
1988 P	495	20,786	0	21,281	843	156	442	19,841	80.6	--
1989 F	442	21,608	0	22,050	807	148	355	20,740	83.5	--
<b>Red meat &amp; poultry</b>										
1986	1,054	57,511	3,319	61,883	1,223	343	1,045	59,273	212.3	--
1987	1,044	58,756	3,532	63,333	1,521	336	1,240	60,229	213.2	--
1988 P	1,240	60,790	3,594	65,624	1,729	354	1,288	62,254	219.2	--
1989 F	1,288	61,251	3,295	65,834	1,708	349	1,091	62,686	219.6	--

1/ Total including farm production for red meats & federally inspected plus nonfederally inspected for poultry.  
 2/ Retail weight basis. (The beef carcass-to-retail conversion factor was .74 during 1962-85. It was lowered to .73 for 1986 & to .71 for 1987 & later.) 3/ Dollars per cwt for red meat; cents per pound for poultry. Beef: Choice steers, Omaha 1,000-1,100 lb.; pork: barrows and gilts, 7 markets; veal: farm price of calves; lamb & mutton: Choice slaughter lambs, San Angelo; broilers: wholesale 12-city average; turkeys: wholesale NY 8-16 lb. young hens. 4/ Carcass weight for red meats & certified ready-to-cook for poultry. 5/ Beginning 1989 veal trade no longer reported separately. P = Preliminary. F = forecast. -- = not available.

Information contacts: Ron Gustafson, Leland Southard, or Mark Weimar (202) 786-1285.

Table 11.—U.S. Egg Supply &amp; Use

	Beg. stocks	Pro- duc- tion	Im- ports	Total supply	Ex- ports	Ship- ments	Hatch- ing use	Ending stocks	Consumption		Wholesale price*  Cts./doz.
									Total	Per capita	
										No.	
Million dozen											
1984	9.3	5,708.3	32.0	5,749.7	58.2	27.8	529.7	11.1	5,122.8	259.4	80.9
1985	11.1	5,688.0	12.7	5,711.8	70.6	30.3	548.1	10.7	5,052.0	253.3	66.4
1986	10.7	5,705.0	13.7	5,729.4	101.6	28.0	566.8	10.4	5,022.6	249.4	71.1
1987	10.4	5,802.3	5.6	5,818.3	111.2	25.1	599.1	14.4	5,068.5	249.3	61.6
1988	14.4	5,771.1	5.3	5,790.8	141.8	25.2	604.3	15.2	5,004.3	244.0	62.1
1989 F	15.2	5,601.0	6.5	5,622.7	105.0	24.0	630.0	10.0	4,853.7	234.6	72-78

\* Cartoned grade A large eggs, New York. F = forecast.

Information contact: Maxine Davis (202) 786-1714.

Table 12.—U.S. Milk Supply & Use<sup>1</sup>

	Pro- duc- tion	Farm use	Commercial		Im- ports	Total commer- cial supply	CCC net re- movals	Commercial		All milk price 2/ \$/cwt
			Farm market- ings	Beg. stocks				Ending stocks	Disap- pear- ance	
Billion pounds										
1981	132.8	2.3	130.5	5.8	2.3	138.5	12.9	5.4	120.3	13.77
1982	135.5	2.4	133.1	5.4	2.5	141.0	14.3	4.6	122.1	13.61
1983	139.7	2.4	137.3	4.6	2.6	144.5	16.8	5.2	122.5	13.58
1984	135.4	2.9	132.5	5.2	2.7	140.5	8.6	4.9	126.9	13.46
1985	143.1	2.5	140.7	4.9	2.8	148.4	13.2	4.6	130.6	12.75
1986	143.4	2.4	141.0	4.6	2.7	148.3	10.6	4.2	133.5	12.51
1987	142.5	2.2	140.3	4.2	2.5	146.9	6.7	4.6	135.6	12.54
1988 F	145.5	2.2	143.3	4.6	2.4	150.3	8.9	4.3	137.1	12.21
1989 P	148.2	2.2	146.0	4.3	2.4	152.7	8.5	4.7	139.5	12.40

1/ Milkfat basis. Totals may not add because of rounding. 2/ Delivered to plants & dealers; does not reflect deductions. F = forecast.

Information contact: Jim Miller (202) 786-1770.

Table 13.—Poultry &amp; Eggs

	Annual			1988				1989		
	1986	1987	1988	Mar	Oct	Nov	Dec	Jan	Feb	Mar
<b>Broilers</b>										
Federally inspected slaughter, certified (mil. lb.)	14,265.6	15,502.5	15,984.0	1,400.4	1,379.1	1,307.1	1,328.4	1,386.0	1,274.7	1,465.8
Wholesale price, 12-city (cts./lb.)	56.9	47.4	56.3	48.1	57.7	57.1	58.8	58.0	58.1	62.1
Price of grower feed (\$/ton)	187	186	220	181	259	259	254	243	243	240
Broiler-feed price ratio 1/	3.7	3.7	3.1	3.1	2.9	2.7	2.8	2.9	2.9	3.2
Stocks beginning of period (mil. lb.)	26.6	23.9	24.8	32.3	32.0	34.6	35.3	35.9	32.8	32.5
Broiler-type chicks hatched (mil.) 2/	5,013.3	5,379.2	5,588.7	483.4	452.3	437.1	487.5	481.3	442.8	502.5
<b>Turkeys</b>										
Federally inspected slaughter, certified (mil. lb.)	3,133	3,717	3,903	314.0	395.7	371.7	272.8	254.1	248.1	300.0
Wholesale price, Eastern U.S., 8-16 lb. young hens (cts./lb.)	72.2	57.8	61.3	47.0	79.6	76.0	61.6	59.0	62.2	65.7
Price of turkey grower feed (\$/ton)	215	213	243	214	266	264	269	262	264	254
Turkey-feed price ratio 1/	4.1	3.9	3.0	2.7	3.6	3.6	2.8	2.7	2.9	3.3
Stocks beginning of period (mil. lb.)	150.2	178.2	282.4	321.5	572.8	583.3	303.5	249.7	262.5	263.1
Poultis placed in U.S. (mil.)	225.4	240.4	242.0	25.1	16.8	18.4	20.4	23.1	23.7	26.9
<b>Eggs</b>										
Farm production (mil.)	68,460	69,627	69,253	6,031	5,833	5,694	5,824	5,721	5,173	5,774
Average number of layers (mil.)	278	280	286	280	276	276	273	272	272	270
Rate of lay (eggs per layer on farms)	248	248	251	21.5	21.2	20.6	21.3	21.1	19.0	21.4
Cartoned price, New York, grade A large (cts./doz.) 3/	71.1	61.6	62.1	56.4	66.0	65.3	70.7	72.0	74.9	92.7
Price of laying feed (\$/ton)	174	170	202	176	222	220	221	217	214	211
Egg-feed price ratio 1/	7.0	7.6	5.3	5.2	5.3	5.4	5.4	5.9	5.8	6.2
<b>Stocks, first of month</b>										
Shell (mil. doz.)	.72	1.16	1.29	1.59	.69	.72	.78	.27	.36	.21
Frozen (mil. doz.)	10.0	9.8	13.1	13.9	16.9	15.2	13.6	14.9	14.9	14.4
Replacement chicks hatched (mil.)	424	428	366	35.6	30.6	29.2	27.0	26.6	27.2	32.7

1/ Pounds of feed equal in value to 1 dozen eggs or 1 lb. of broiler or turkey liveweight. 2/ Placement of broiler chicks is currently reported for 12 States only; henceforth, hatch of broiler-type chicks will be used as a substitute. 3/ Price of cartoned eggs to volume buyers for delivery to retailers. P = preliminary.

Information contact: Maxine Davis (202) 786-1714.



Table 14.—Dairy

	Annual			1988				1989		
	1986	1987	1988	Mar	Oct	Nov	Dec	Jan	Feb	Mar
Milk prices, Minnesota-Wisconsin, 3.5% fat (\$/cwt) 1/	11.30	11.23	11.03	10.43	11.88	12.23	12.27	11.90	11.26	10.98
Wholesale prices										
Butter, grade A Chi. (cts./lb.)	144.5	140.2	132.5	131.0	132.0	131.2	131.2	131.0	131.0	131.0
Am. cheese, Wis. assembly pt. (cts./lb.)	127.3	123.2	123.8	115.6	136.4	136.3	136.0	129.1	117.6	117.8
Nonfat dry milk (cts./lb.) 2/	80.6	79.3	80.2	73.1	88.8	90.1	92.7	93.6	83.6	79.6
USDA net removals										
Total milk equiv. (mil. lb.) 3/	10,628.1	6,706.0	8,856.2	1,091.8	339.1	217.3	448.7	1,563.2	1,471.6	1,156.5
Butter (mil. lb.)	287.6	187.3	312.6	36.1	15.2	9.2	19.8	73.8	67.0	54.4
Am. cheese (mil. lb.)	468.4	282.0	238.1	34.7	2.2	2.3	3.8	3.5	8.5	3.0
Nonfat dry milk (mil. lb.)	827.3	559.4	267.5	49.8	0	0	0	0	0	0
Milk										
Milk prod. 21 States (mil. lb.)	121,433	121,294	123,896	10,693	10,125	9,790	10,251	10,465	9,830	10,864
Milk per cow (lb.)	13,399	13,955	14,378	1,237	1,179	1,140	1,193	1,220	1,148	1,272
Number of milk cows (1,000)	9,063	8,692	8,617	8,641	8,591	8,585	8,594	8,577	8,562	8,544
U.S. milk production (mil. lb.)	143,381	142,557	145,527	6/12,593	6/11,893	6/11,500	6/12,041	6/12,296	6/11,550	6/12,764
Stock, beginning										
Total (mil. lb.)	13,695	12,867	7,440	8,486	9,761	9,125	8,382	8,189	8,927	10,448
Commercial (mil. lb.)	4,590	4,165	4,646	4,935	4,872	4,535	4,069	4,289	4,673	5,018
Government (mil. lb.)	9,105	8,702	2,794	3,551	4,889	4,590	4,313	3,900	4,254	5,430
Imports, total (mil. lb.) 3/	2,733	2,490	2,394	172	210	240	235	--	--	--
Commercial disappearance (mil. lb.)	133,498	135,657	137,187	11,339	11,911	11,806	11,418	10,399	9,731	--
Butter										
Production (mil. lb.)	1,202.4	1,104.1	1,207.5	115.5	92.3	95.6	112.0	129.0	124.7	135.7
Stocks, beginning (mil. lb.)	205.5	193.0	143.2	198.9	253.4	237.3	226.2	214.7	246.6	314.4
Commercial disappearance (mil. lb.)	922.9	902.5	909.8	72.9	86.2	93.2	94.6	45.7	47.8	--
American cheese										
Production (mil. lb.)	2,798.2	2,716.7	2,756.6	248.2	220.9	214.5	235.0	225.6	208.7	231.9
Stocks, beginning (mil. lb.)	850.2	697.1	370.4	364.5	354.7	325.0	282.5	293.0	288.4	293.5
Commercial disappearance (mil. lb.)	2,382.8	2,437.1	2,570.0	215.0	235.4	238.1	205.6	215.8	189.3	--
Other cheese										
Production (mil. lb.)	2,411.1	2,627.7	2,815.0	243.5	249.1	244.4	251.5	230.9	210.8	256.5
Stocks, beginning (mil. lb.)	94.1	92.0	89.7	88.4	106.5	107.4	105.9	104.7	111.4	111.4
Commercial disappearance (mil. lb.)	2,684.9	2,880.2	3,034.1	258.1	270.4	271.9	278.2	244.8	224.8	--
Nonfat dry milk										
Production (mil. lb.)	1,284.1	1,056.8	978.5	95.3	56.8	54.3	75.8	87.1	85.6	95.7
Stocks, beginning (mil. lb.)	1,011.1	686.8	177.2	152.2	63.6	64.3	50.4	53.1	66.3	84.4
Commercial disappearance (mil. lb.)	479.1	492.9	733.1	52.9	51.7	65.1	69.9	71.8	66.2	--
Frozen dessert										
Production (mil. gal.) 4/	1,248.6	1,260.7	1,246.9	110.4	90.0	81.4	79.1	80.5	86.6	108.0

1/ Manufacturing grade milk. 2/ Prices paid f.o.b. Central States production area, high heat spray process.  
 3/ Milk equivalent, fat basis. 4/ Ice cream, ice milk, & hard sherbet. 5/ Based on average milk price after adjustment for price support deductions. 6/ Estimated. P = preliminary. -- = not available.

Information contact: Jim Miller (202) 786-1770.

Table 15.—Wool

	Annual			1988				1989		
	1986	1987	1988	Mar	Oct	Nov	Dec	Jan	Feb	Mar P
U.S. wool price, Boston 1/ (cts./lb.)	191	265	438	435	463	475	450	450	438	410
Imported wool price, Boston 2/ (cts./lb.)	201	247	372	370	378	377	391	432	417	387
U.S. mill consumption, scoured										
Apparel wool (1,000 lb.)	126,768	129,677	128,325	13,514	10,040	9,127	12,097	10,610	11,074	13,719
Carpet wool (1,000 lb.)	9,960	13,092	15,825	1,786	993	971	1,005	800	1,314	1,561

1/ Wool price delivered at U.S. mills, clean basis, Graded Territory 64's (20.60-22.04 microns) staple 2-3/4" & up.  
 2/ Wool price delivered at U.S. mills, clean basis, Australian 60/62's, type 64A (24 micron). Duty since 1982 has been 10.0 cents. P = preliminary.

Information contact: John Lawler (202) 786-1840.

Table 16.—Meat Animals

	Annual			1988				1989		
	1986	1987	1988	Mar	Oct	Nov	Dec	Jan	Feb	Mar
Cattle on feed (7 States)										
Number on feed (1,000 head) 1/	7,920	7,643	8,066	7,587	7,144	7,934	8,000	7,765	7,700	7,661
Placed on feed (1,000 head)	20,035	21,040	20,584	1,848	2,475	1,680	1,401	1,711	1,585	1,975
Marketings (1,000 head)	19,263	19,410	19,698	1,583	1,601	1,507	1,521	1,672	1,509	1,549
Other disappearance (1,000 head)	1,049	1,207	1,187	106	84	107	115	104	115	75
Beef steer-corn price ratio, Omaha 2/	31.0	41.0	31.5	38.4	26.4	28.4	27.9	28.2	28.7	29.4
Hog-corn price ratio, Omaha 2/	27.8	32.8	19.6	23.0	14.9	14.7	16.2	16.4	16.3	15.4
Market prices (\$/cwt)										
Slaughter cattle										
Choice steers, Omaha	57.75	64.60	69.54	71.53	69.13	70.07	71.21	72.35	72.92	75.7
Utility cows, Omaha	37.19	44.83	46.55	48.43	47.71	42.10	45.14	44.88	46.92	45.6
Choice vealers, S. St. Paul 3/	59.92	78.74	90.23	87.50	213.75	239.00	225.94	229.63	225.06	257.5
Feeder cattle										
Choice, Kansas City, 600-700 lb.	62.79	75.36	83.67	85.20	85.81	83.90	86.13	86.00	85.56	84.4
Slaughter hogs										
Barrows & gilts, 7-markets	51.19	51.69	43.39	42.79	38.95	36.45	40.58	41.58	40.91	39.8
Feeder pigs										
S. MO. 40-50 lb. (per head)	45.62	46.69	38.88	48.65	30.95	29.82	29.17	35.25	34.18	39.5
Slaughter sheep & lambs										
Lambs, Choice, San Angelo	69.46	78.09	68.84	77.00	63.94	65.55	68.83	68.13	68.83	71.0
Ewes, Good, San Angelo	34.78	38.62	38.88	41.17	36.88	38.75	42.08	45.69	53.28	47.5
Feeder lambs										
Choice, San Angelo	73.14	102.26	90.91	111.30	80.38	82.00	84.83	84.38	84.38	95.3
Wholesale meat prices, Midwest										
Choice steer beef, 600-700 lb.	88.98	97.21	103.34	103.47	104.36	104.73	106.20	107.30	107.98	112.4
Canner & cutter cow beef	71.31	83.70	87.77	90.33	85.58	85.32	90.03	91.23	96.93	92.1
Pork loins, 14-18 lb. 4/	104.78	106.23	97.49	87.82	85.33	77.87	93.61	89.35	90.97	91.7
Pork bellies, 12-14 lb.	65.82	63.11	41.25	45.32	34.97	33.64	34.82	36.91	31.41	30.9
Hams, skinned, 14-17 lb.	80.01	80.96	71.03	78.35	78.33	78.06	65.50	65.81	67.11	63.0
All fresh beef retail price 5/	--	212.64	224.35	219.97	230.59	232.94	232.97	234.05	233.94	238.5
Commercial slaughter (1,000 head)*										
Cattle	37,288	35,647	35,072	2,896	2,966	2,800	2,774	2,789	2,568	2,822
Steers	17,516	17,443	17,341	1,435	1,368	1,317	1,354	1,327	1,261	1,400
Heifers	11,097	10,906	10,755	894	965	827	817	850	808	840
Cows	7,961	6,610	6,334	512	573	601	554	561	457	532
Bulls & stags	714	689	642	55	59	54	49	51	42	50
Calves	3,408	2,815	2,504	223	206	210	211	203	181	200
Sheep & lambs	5,635	5,199	5,293	548	452	432	460	428	425	519
Hogs	79,598	81,081	87,738	7,692	8,096	8,138	7,946	7,332	6,791	7,763
Commercial production (mil. lb.)										
Beef	24,213	23,405	23,419	1,925	2,007	1,876	1,872	1,896	1,744	1,889
Veal	509	416	387	33	34	33	32	32	28	31
Lamb & mutton	331	309	329	35	28	27	29	27	27	33
Pork	13,998	14,312	15,614	1,362	1,443	1,463	1,425	1,310	1,204	1,373
	Annual			1987				1988		
	1986	1987	1988	IV	I	II	III	IV	I	II
Cattle on feed (13 States)										
Number on feed (1,000 head) 1/	9,754	9,245	9,769	8,992	9,769	9,385	9,001	8,591	9,408	9,678
Placed on feed (1,000 head)	23,583	24,894	24,353	6,718	5,824	5,893	5,986	6,650	6,212	--
Marketings (1,000 head)	22,856	22,991	23,339	5,603	5,823	5,859	6,171	5,486	5,598	7/6,088
Other disappearance (1,000 head)	1,236	1,379	1,375	338	385	418	225	347	344	--
Hogs & pigs (10 States) 6/										
Inventory (1,000 head) 1/	41,100	39,690	42,995	43,150	42,995	41,345	44,065	45,000	43,010	41,255
Breeding (1,000 head) 1/	5,258	5,110	5,510	5,310	5,510	5,520	5,630	5,460	5,315	5,380
Market (1,000 head) 1/	35,842	34,580	37,485	37,840	37,485	35,825	38,435	39,540	37,695	35,875
Farrowings (1,000 head)	8,223	8,838	9,316	2,266	2,123	2,578	2,359	2,261	2,094	7/2,449
Pig crop (1,000 head)	63,835	68,888	71,848	17,572	16,489	20,175	18,007	17,216	16,321	--

1/ Beginning of period. 2/ Bushels of corn equal in value to 100 pounds live weight. 3/ Per head starting September 1988. 4/ Prior to 1984, 8-14 lb.; 1984 & 1985, 14-17 lb.; beginning 1986, 14-18 lb. 5/ New series estimating the composite price of all beef grades & ground beef sold by retail stores. This new series is in addition to, but does not replace, the series for the retail price of Choice beef that appears in table 8. 6/ Quarters are Dec. of preceding year-Feb. (I), Mar.-May (II), June-Aug. (III), and Sept.-Nov. (IV). 7/ Intentions. \*Classes estimated. -- = not available.

Information contacts: Ron Gustafson or Leland Southard (202) 786-1285.



# Crops & Products

Table 17.—Supply & Utilization<sup>1,2</sup>

	Area			Yield	Production	Total supply	Feed and residual	Other domestic use	Export	Total use	Ending stocks	Farm price
	Set aside	Planted	Harvested									
	3/											
	Mil. acres		Bu./acre					Mil. bu.				\$/bu.
Wheat												
1984/85	18.3	79.2	66.9	38.8	2,595	4,003	405	749	1,424	2,578	1,425	3.39
1985/86	18.8	75.6	64.7	37.5	2,425	3,866	279	767	915	1,961	1,905	3.08
1986/87	20.2	72.1	60.7	34.4	2,092	4,018	413	780	1,004	2,197	1,821	2.42
1987/88	27.9	65.8	56.0	37.7	2,107	3,945	288	804	1,592	2,684	1,261	2.57
1988/89*	30.1	65.5	53.2	34.1	1,811	3,094	210	830	1,460	2,500	594	3.74
1989/90*					2,050	2,665	175	840	1,150	2,165	500	3.80-4.20
Rice												
	Mil. acres		Lb./acre					Mil. cwt (rough equiv.)				\$/cwt
1984/85	.79	2.83	2.80	4,954	138.8	187.3	--	6/60.5	62.1	122.6	64.7	8.04
1985/86	1.24	2.51	2.49	5,414	134.9	201.8	--	6/65.8	58.7	124.5	77.3	6.53
1986/87	1.48	2.38	2.36	5,651	133.4	213.3	--	6/77.7	84.2	161.9	51.4	3.75
1987/88	1.51	2.36	2.33	5,555	129.6	184.0	--	6/80.4	72.2	152.6	31.4	7.27
1988/89*	.93	2.93	2.90	5,511	159.5	194.6	--	6/84.2	74.0	158.2	36.4	6.50-7.00
1989/90*					159.0	199.6	--	6/87.6	77.0	164.6	35.0	6.00-8.00
Corn												
	Mil. acres		Bu./acre					Mil. bu.				\$/bu.
1984/85	3.9	80.5	71.9	106.7	7,674	8,684	4,079	1,091	1,865	7,036	1,648	2.63
1985/86	5.4	83.4	75.2	118.0	8,877	10,536	4,095	1,160	1,241	6,496	4,040	2.23
1986/87	13.5	76.7	69.2	119.3	8,250	12,291	4,714	1,192	1,504	7,410	4,882	1.50
1987/88	25.6	65.7	59.2	119.4	7,072	11,958	4,738	1,229	1,732	7,699	4,259	1.94
1988/89*	23.6	67.6	58.2	84.6	4,921	9,185	4,000	1,255	2,100	7,355	1,830	2.45-2.70
1989/90*					7,850	9,683	4,200	1,300	1,950	7,450	2,233	1.65-2.05
Sorghum												
	Mil. acres		Bu./acre					Mil. bu.				\$/bu.
1984/85	.6	17.3	15.4	56.4	866	1,154	539	18	297	854	300	2.32
1985/86	.9	18.3	16.8	66.8	1,120	1,420	664	28	178	869	551	1.93
1986/87	3.0	15.3	13.9	67.7	938	1,489	535	12	198	746	743	1.37
1987/88	5.2	11.8	10.6	69.7	739	1,483	564	25	231	820	663	1.70
1988/89*	5.8	10.4	9.1	63.8	578	1,240	500	35	300	835	420	2.25-2.50
1989/90*					700	1,105	525	35	250	810		1.55-1.95
Barley												
	Mil. acres		Bu./acre					Mil. bu.				\$/bu.
1984/85	.5	12.0	11.2	53.4	599	799	304	170	77	551	247	2.29
1985/86	.7	13.2	11.6	51.0	591	848	333	169	22	523	325	1.98
1986/87	2.1	13.1	12.0	50.8	611	944	298	174	137	608	336	1.61
1987/88	4.0	11.0	10.1	52.7	530	879	258	174	126	558	321	1.81
1988/89*	4.8	9.7	7.5	38.6	291	624	200	185	75	460	164	2.82
1989/90*					450	624	220	185	75	480	144	1.85-2.25
Oats												
	Mil. acres		Bu./acre					Mil. bu.				\$/bu.
1984/85	.1	12.4	8.2	58.0	474	689	433	74	1	509	180	1.67
1985/86	.1	13.3	8.2	63.7	521	728	460	82	2	544	184	1.23
1986/87	.6	14.7	6.9	56.3	386	603	395	73	3	471	133	1.21
1987/88	1.3	18.0	6.9	54.0	374	553	361	79	1	441	112	1.56
1988/89*	1.2	13.9	5.6	39.1	219	391	201	100	1	302	89	2.62
1989/90*					420	549	320	110	2	432	117	1.45-1.85
Soybeans												
	Mil. acres		Bu./acre					Mil. bu.				\$/bu.
1984/85	0	67.8	66.1	28.1	1,861	2,037	7/93	1,030	598	1,721	316	5.84
1985/86	0	63.1	61.6	34.1	2,099	2,415	7/86	1,053	740	1,879	536	5.05
1986/87	0	60.4	58.3	33.3	1,940	2,476	7/104	1,179	757	2,040	436	4.78
1987/88	0	58.0	57.0	33.7	1,923	2,359	7/81	1,174	802	2,057	302	5.88
1988/89*	0	58.9	57.4	26.8	1,539	1,841	7/96	1,060	550	1,706	135	7.35
1989/90*					1,950	2,085	7/95	1,105	600	1,800	285	4.75-6.25
Soybean oil												
								Mil. lbs.				8/ Cts./lb.
1984/85	--	--	--	--	11,468	12,209	--	9,917	1,660	11,577	632	29.50
1985/86	--	--	--	--	11,617	12,257	--	10,053	1,257	11,310	947	18.00
1986/87	--	--	--	--	12,783	13,745	--	10,833	1,187	12,020	1,725	15.40
1987/88	--	--	--	--	9/ 12,974	14,895	--	10,930	1,873	12,803	2,092	22.65
1988/89*	--	--	--	--	9/ 11,658	13,750	--	10,500	1,300	11,800	2,150	21.50
1989/90*					12,270	14,420		11,000	1,400	12,400	2,050	19.50-23.50
Soybean meal												
								1,000 tons				10/ \$/ton
1984/85	--	--	--	--	24,529	24,784	--	19,480	4,917	24,397	387	125
1985/86	--	--	--	--	24,951	25,338	--	19,090	6,036	25,126	212	155
1986/87	--	--	--	--	27,758	27,970	--	20,387	7,343	27,730	240	163
1987/88	--	--	--	--	28,060	28,300	--	21,276	6,871	28,147	153	222
1988/89*	--	--	--	--	24,897	25,050	--	19,500	5,250	24,750	300	230
1989/90*					26,250	26,550		20,750	5,500	26,250	300	140-180

See footnotes at end of table.

Table 17.—Supply &amp; Utilization, continued

	Area			Yield	Production	Total supply 4/	Feed and residual	Other domestic use	Exports	Total use	Ending stocks	Farm price 5/
	Set aside 3/	Planted	Harvested									
	-----		-----									
	Mil. acres		Lb./acre				Mil. bales				Cts./lb.	
Cotton 11/												
1984/85	2.5	11.1	10.4	600	13.0	15.8	--	5.5	6.2	11.8	4.1	58.70
1985/86	3.6	10.7	10.2	630	13.4	17.6	--	6.4	2.0	8.4	9.4	56.50
1986/87	3.4	10.0	8.5	552	9.7	19.1	--	7.4	6.7	14.1	5.0	52.40
1987/88	3.2	10.4	10.0	706	14.8	19.8	--	7.6	6.6	14.2	5.8	64.30
1988/89*	1.6	12.5	11.9	619	15.4	21.2	--	7.3	5.9	13.2	8.1	--
1989/90*					13.5	21.6	--	7.5	7.5	15.0	6.7	--

\*May 11, 1989 Supply and Demand Estimates. 1/ Marketing year beginning June 1 for wheat, barley, & oats, August 1 for cotton & rice, September 1 for soybeans, corn, & sorghum, October 1 for soybean meal & soybean oil. 2/ Conversion factors: Hectare (ha.) = 2.471 acres, 1 metric ton = 2,204.622 pounds, 36.7437 bushels of wheat or soybeans, 39.3679 bushels of corn or sorghum, 45.9296 bushels of barley, 68.8944 bushels of oats, 22.046 cwt of rice, and 4.59 480-pound bales of cotton. 3/ Includes diversion, PIK, & acreage reduction programs. 4/ Includes imports. 5/ Market average prices do not include an allowance for loans outstanding & Government purchases. 6/ Residual included in domestic use. 7/ Includes seed. 8/ Average of crude soybean oil, Decatur. 9/ Includes 196 million pounds in imports for 1987/88 & 300 million in 1988/89. 10/ Average of 44 percent, Decatur. 11/ Upland & extra long staple. Stock estimates based on Census Bureau data, resulting in an unaccounted difference between supply & use estimates & changes in ending stocks. -- = not available.

Information contact: Commodity Economics Division, Crops Branch (202) 786-1840.

Table 18.—Food Grains

	Marketing year 1/				1988			1989		
	1984/85	1985/86	1986/87	1987/88	Mar	Nov	Dec	Jan	Feb	Mar
Wholesale prices										
Wheat, No. 1 HRW, Kansas City (\$/bu.) 2/	3.74	3.28	2.72	2.96	3.10	4.18	4.25	4.40	4.37	4.32
Wheat, DNS Minneapolis (\$/bu.) 2/	3.70	3.25	2.62	2.92	3.05	4.09	4.20	4.42	4.37	4.46
Rice, S.W. La. (\$/cwt) 3/	17.98	16.11	10.25	19.25	24.50	14.50	14.10	14.00	14.20	13.80
Wheat										
Exports (mil. bu.)	1,424	915	1,004	1,592	151	98	109	--	--	--
Mill grind (mil. bu.)	676	703	755	753	60	69	63	63	--	59
Wheat flour production (mil. cwt)	301	314	335	336	26	31	28	29	--	27
Rice										
Exports (mil. cwt, rough equiv.)	62.1	58.7	84.2	72.2	5.9	7.7	9.8	10.0	9.1	--

	Marketing year 1/			1987		1988			1989	
	1985/86	1986/87	1987/88	Jun-Aug	Sept-Nov	Dec-Feb	Mar-May	Jun-Aug	Sept-Nov	Dec-Feb
Wheat										
Stocks, beginning (mil. bu.)	1,425	1,905	1,821	1,820.9	2,976.5	2,500.6	1,923.5	1,260.8	2,253.6	1,709.9
Domestic use										
Food (mil. bu.)	674	696	719	179.3	191.1	168.6	180.0	179.2	194.4	168.6
Seed, feed & residual (mil. bu.) 4/	279	413	288	366.8	-76.6	-5.0	2.6	283.6	-40.4	-41.1
Exports (mil. bu.)	915	1,004	1,592	409.9	308.5	413.1	460.6	363.4	330.1	363.1

1/ Beginning June 1 for wheat & August 1 for rice. 2/ Ordinary protein. 3/ Long grain, milled basis. 4/ Residual includes feed use. -- = not available.

Information contacts: Ed Allen & Janet Livezey (202) 786-1840.

Table 19.—Cotton

	Marketing year 1/				1988			1989		
	1984/85	1985/86	1986/87	1987/88	Mar	Nov	Dec	Jan	Feb	Mar
U.S. price, SLM, 1-1/16 in. (cts./lb.) 2/	60.5	60.0	53.2	63.1	59.6	53.4	54.8	55.7	55.4	57.6
Northern Europe prices										
Index (cts./lb.) 3/	69.2	48.9	62.0	72.7	66.3	58.6	61.3	63.1	63.0	66.0
U.S. M 1-3/32 in. (cts./lb.) 4/	73.9	64.8	61.8	76.3	70.8	63.9	65.8	67.2	68.1	70.0
U.S. mill consumpt. (1,000 bales)	5,545	6,399	7,452	7,617	706	581	496	629	595	712
Exports (thou bales)	6,201	1,969	6,684	6,582	779	398	670	483	738	761
Stocks, beginning (1,000 bales)	2,775	4,102	9,348	5,026	11,355	10,196	14,155	15,635	15,169	13,946

1/ Beginning August 1. 2/ Average spot market. 3/ Liverpool Outlook (A) index; average of five lowest priced of 11 selected growths. 4/ Memphis territory growths.

Information contact: Bob Skinner (202) 786-1840.



Table 20.—Feed Grains

	Marketing year 1/				1988			1989		
	1984/85	1985/86	1986/87	1987/88	Mar	Nov	Dec	Jan	Feb	Mar
Wholesale prices										
Corn, no. 2 yellow, Chicago (\$/bu.)	2.79	2.35	1.64	2.14	2.03	2.65	2.69	2.74	2.72	2.78
Sorghum, no. 2 yellow, Kansas City (\$/cwt)	4.46	3.72	2.73	3.40	3.27	4.00	4.23	4.24	4.26	4.32
Barley, feed, Duluth (\$/bu.) 2/	2.09	1.53	1.44	1.78	1.88	2.27	2.14	2.24	2.33	2.49
Barley, malting, Minneapolis (\$/bu.)	2.55	2.24	1.89	2.04	2.08	4.14	3.82	4.14	4.19	4.33
Exports 3/										
Corn (mil. bu.)	1,865	1,241	1,504	1,732	164.0	151.0	173.5	176.0	154.7	202.7
Feed grains (mil. metric tons) 4/	56.6	36.6	46.3	52.6	5.1	4.4	5.4	5.3	4.8	5.9
	Marketing year 1/				1987		1988			1989
	1984/85	1985/86	1986/87	1987/88	Sept-Nov	Dec-Feb	Mar-May	Jun-Aug	Sept-Nov	Dec-Feb
Corn										
Stocks, beginning (mil. bu.)	1,006	1,648	4,040	4,882	4,882	9,769	7,635	5,836	4,259	7,072
Domestic use										
Feed (mil. bu.)	4,079	4,095	4,714	4,746	1,488	1,444	960	839	1,338	1,078
Food, seed, ind. (mil. bu.)	1,091	1,160	1,192	1,224	292	282	330	323	289	280
Exports (mil. bu.)	1,865	1,241	1,504	1,720	398	408	514	414	482	510
Total use (mil. bu.)	7,036	6,496	7,410	7,690	2,178	2,134	1,804	1,577	2,109	1,868

1/ September 1 for corn & sorghum; June 1 for oats & barley. 2/ Beginning March 1987 reporting point changed from Minneapolis to Duluth. 3/ Excludes products. 4/ Aggregated data for corn, sorghum, oats, & barley.  
Information contact: James Cole (202) 786-1840.

Table 21.—Fats & Oils

	Marketing year *				1988				1989	
	1984/85	1985/86	1986/87	1987/88	Feb	Oct	Nov	Dec	Jan	Feb
Soybeans										
Wholesale price, no. 1 yellow, Chicago (\$/bu.)	5.88	5.20	5.03	6.67	6.14	7.82	7.57	7.74	7.70	7.45
Crushings (mil. bu.)	1,030.5	1,052.8	1,178.8	1,174.5	99.8	94.4	101.0	100.7	99.8	85.8
Exports (mil. bu.)	598.2	740.7	756.9	801.6	97.0	50.2	61.3	69.3	66.6	56.8
Stocks, beginning (mil. bu.)	175.7	316.0	536.0	436.0	141.8	61.4	136.6	147.4	138.6	131.9
Soybean oil										
Wholesale price, crude, Decatur (cts./lb.)	29.52	18.02	15.36	22.92	20.94	23.42	21.55	22.16	21.13	21.21
Production (mil. lb.)	11,467.9	11,617.3	12,783.1	12,974.5	1,091.8	1,047.4	1,108.5	1,110.4	1,105.8	952.3
Domestic disp. (mil. lb.)	9,888.5	10,045.9	10,820.2	10,734.1	962.9	893.4	741.1	753.7	838.0	686.1
Exports (mil. lb.)	1,659.9	1,257.3	1,184.5	1,873.2	281.0	200.1	110.6	119.9	104.5	65.8
Stocks, beginning (mil. lb.)	720.5	632.5	946.6	1,725.0	2,390.9	2,092.2	2,046.2	2,303.0	2,539.9	2,703.2
Soybean meal										
Wholesale price, 44% protein, Decatur (\$/ton)	125.46	154.88	162.61	221.90	183.00	259.75	248.20	246.00	249.30	234.10
Production (1,000 ton)	24,529.3	24,951.3	27,758.8	28,060.2	2,377.1	2,235.5	2,399.4	2,390.0	2,359.8	2,036.3
Domestic disp. (1,000 ton)	19,481.3	19,117.2	20,387.4	21,275.9	1,475.8	1,609.4	1,962.7	1,737.9	1,723.2	1,570.8
Exports (1,000 ton)	4,916.5	6,009.3	7,343.0	6,871.0	986.9	511.8	409.0	594.1	548.0	512.1
Stocks, beginning (1,000 ton)	255.4	386.9	211.7	240.2	390.4	153.5	267.8	295.6	353.6	442.3
Margarine, wholesale price, Chicago, white (cts./lb.)										
	55.5	51.2	40.3	40.3	46.0	56.33	55.39	55.26	54.63	54.00

\* Beginning September 1 for soybeans; October 1 for soybean oil & meal; calendar year for margarine.  
Information contacts: Roger Hoskin (202) 786-1840, Tom Bickerton (202) 786-1824.

1/ Includes planted area plus acres considered planted (ARP, PLD, D-92 etc). Net of CRP. Revised April 1989. 2/ Percentage of base acres that farmers participating in Acreage Reduction Programs/Paid Land Diversion/PIK were required to devote to conserving uses to receive program benefits. In addition to the percentages shown for 1983/84, farmers had the option of submitting bids to retire their entire base acreages. 3/ Percentage of base acres enrolled in Acreage Reduction Programs/Paid Land Diversion/PIK. 4/ Percent of program yield, except 1986/87 wheat, which is dollars per bushel. 1983 & 1984 PIK rates apply only to the 10-30 and 10-20 portions, respectively. 5/ Rates for payments received in cash were reduced by 4.3 percent in 1986/87 due to Gramm-Rudman-Hollings. 6/ Annual average world market price. 7/ Guaranteed to farmers signed up for D/92. 8/ The sorghum, oats, & barley programs were the same as for corn each year except 1983/84, when PIK was not offered on barley & oats, & in 1988 for oats. 9/ There are no target prices, acreage programs, or payment rates for soybeans. 10/ Loan rate is not to be announced prior to August 1, 1989. 11/ Loan repayment rate. 12/ Loans may be repaid at the lower of the loan rate or world market prices.

52



Table 23.—Fruit

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988 F
Citrus 1/												
Production (1,000 ton)	14,255	13,329	16,484	15,105	12,057	13,608	10,792	10,525	11,051	11,968	12,641	13,163
Per capita consumpt. (lbs.) 2/	115.1	107.5	108.4	112.6	104.4	109.3	119.9	102.9	109.1	118.0	114.9	--
Noncitrus 3/												
Production (1,000 tons)	12,274	12,460	13,689	15,152	12,961	14,217	14,154	14,292	14,189	13,917	16,008	15,271
Per capita consumpt. (lbs.) 2/	84.5	83.0	85.7	87.3	88.0	89.0	88.9	93.7	92.3	95.7	101.9	--
	1988					1989						
F.o.b. shipping point prices	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
Apples (\$/carton) 4/	10.96	10.98	14.21	23.87	23.05	20.45	13.80	12.15	12.63	10.78	13.94	12.32
Pears (\$/box) 5/	12.88	15.14	17.50	--	--	--	--	12.48	12.33	9.70	10.58	10.75
Oranges (\$/box) 6/	6.79	8.25	8.42	6.41	4.90	4.17	5.48	5.82	6.50	6.20	6.21	5.27
Grapefruit (\$/box) 6/	4.92	4.53	3.36	4.85	4.09	7.34	7.57	4.77	4.71	3.72	3.34	3.36
Stocks, ending												
Fresh apples (mil. lbs.)	1,092.7	552.2	248.1	95.0	5.1	1,857.7	4,601.8	3,904.3	3,265.8	2,659.6	2,094.6	1,544.2
Fresh pears (mil. lbs.)	49.2	17.9	2.7	--	117.6	434.0	425.7	368.3	295.5	234.6	162.9	115.1
Frozen fruits (mil. lbs.)	593.3	548.5	657.3	864.0	981.4	997.5	1,116.0	1,011.8	937.3	834.5	759.3	671.4
Frozen orange												
Juice (mil. lbs.)	1,018.7	1,120.1	1,154.7	1,001.8	862.5	693.1	639.7	587.7	721.6	980.9	1,151.1	1,086.8

1/ Crop year beginning with year indicated. 2/ Per capita consumption for total U.S. population, including military consumption of both fresh and processed fruit in fresh weight equivalent. 3/ Calendar year. 4/ Red delicious, Washington, extra fancy, carton tray pack, 80-113's. 5/ D'Anjou, Washington, standard box wrapped, U.S. no. 1, 90-135's. 6/ U.S. equivalent on-tree returns. F = forecast. -- = not available.

Information contact: Ben Huang (202) 786-1885.

Table 24.—Vegetables

	Calendar year												
	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988			
Production													
Total vegetables (1,000 cwt) 1/	413,925	381,370	379,123	431,515	403,320	457,392	453,769	445,436	464,141	452,731			
Fresh (1,000 cwt) 1/ 2/	190,859	190,228	194,694	207,924	197,919	217,132	217,932	216,267	219,689	225,784			
Processed (tons) 3/	11,153,300	9,557,100	9,221,460	11,179,590	10,270,050	12,013,020	11,791,860	11,616,560	12,222,620	11,347,370			
Mushrooms (1,000 lbs.)	470,069	469,576	517,146	490,826	561,531	595,681	587,956	614,393	631,690	--			
Potatoes (1,000 cwt)	342,447	302,857	338,591	355,131	333,911	362,612	407,109	361,511	385,462	349,973			
Sweetpotatoes (1,000 cwt)	13,370	10,953	12,799	14,833	12,083	12,986	14,853	12,674	12,064	11,832			
Dry edible beans (1,000 cwt)	20,552	26,729	32,751	25,563	15,520	21,070	22,175	22,886	25,909	19,230			
	1988											1989	
	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
Shipments													
Fresh (1,000 cwt) 4/	18,271	18,927	26,488	36,998	21,631	21,791	15,215	16,475	20,999	16,579	18,006	23,741	14,000
Potatoes (1,000 cwt)	8,890	14,970	12,356	12,791	7,461	10,014	9,963	9,958	13,796	9,051	9,306	10,815	7,809
Sweetpotatoes (1,000 cwt)	366	218	174	127	91	212	262	305	876	460	246	350	208

1/ 1983 data are not comparable with 1984 & 1985. 2/ Estimate reinstated for asparagus with the 1984 crop; all other years also include broccoli, carrots, cauliflower, celery, sweet corn, lettuce, honeydews, onions, & tomatoes. 3/ Estimates reinstated for cucumbers with the 1984 crop; all other years also include snap beans, sweet corn, green peas, & tomatoes. 4/ Includes snap beans, broccoli, cabbage, carrots, cauliflower, celery, sweet corn, cucumbers, eggplant, lettuce, onions, bell peppers, squash, tomatoes, cantaloupes, honeydews, & watermelons. -- = not available.

Information contacts: Shannon Hamm or Cathy Greene (202) 786-1884.

Table 25.—Other Commodities

	Annual					1988				1989
	1984	1985	1986	1987	1988	Jan-Mar	Apr-June	July-Sept	Oct-Dec	Jan-Mar
Sugar										
Production 1/	5,890	5,969	6,257	7,309	7,069	2,082	772	642	3,573	1,835
Deliveries 1/	8,454	8,035	7,786	8,167	8,188	1,951	1,983	2,147	2,107	1,902
Stocks, ending 1/	3,005	3,126	3,225	3,195	3,117	3,567	2,467	1,316	3,134	3,413
Coffee										
Composite green price N.Y. (cts./lb.)	142.95	137.46	185.18	109.14	115.59	121.98	121.44	114.20	120.75	126.67
Imports, green bean equiv. (mil. lbs.) 2/	2,411	2,550	2,596	2,638	2,072	584	422	594	472	565
	Annual					1988				1989
	1986	1987	1988	Feb	Sept	Oct	Nov	Dec	Jan	Feb
Tobacco										
Prices at auctions 3/										
Flue-cured (\$/lb.)	1.52	1.59	1.61	--	1.67	1.71	1.61	--	--	--
Burley (\$/lb.)	1.57	1.56	1.62	1.50	NQ	NQ	1.63	1.62	1.60	1.54
Domestic consumption 4/										
Cigarettes (bil.)	584.0	577.0	543.3	46.1	51.9	46.9	56.3	39.5	46.9	--
Large cigars (mil.)	3,090	2,760	2,541	192.6	245.4	217.4	209.7	203.3	169.3	--

1/ 1,000 short tons, raw value. Quarterly data shown at end of each quarter. 2/ Net imports of green & processed coffee. 3/ Crop year July-June for flue-cured, Oct.-Sept. for burley. 4/ Taxable removals. P = preliminary. -- = not available. NQ = no quote.

Information contacts: sugar, Peter Buzzanell (202) 786-1888, coffee, Fred Gray (202) 786-1888, tobacco, Verner Grise (202) 786-1890.

Table 26.—World Supply &amp; Utilization of Major Crops, Livestock, &amp; Products

	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89 P	1989/90 F
	Million units						
Wheat							
Area (hectares)	228.8	231.0	229.3	228.1	219.9	218.7	
Production (metric tons)	489.3	511.9	500.1	530.7	503.7	501.2	532.6
Exports (metric tons) 1/	102.0	107.0	85.0	90.7	105.5	98.3	97.4
Consumption (metric tons) 2/	474.1	493.0	496.2	522.4	533.5	535.4	535.1
Ending stocks (metric tons) 3/	145.2	164.0	167.9	176.1	146.3	112.0	109.5
Coarse grains							
Area (hectares)	335.1	334.7	341.2	336.8	323.4	326.7	
Production (metric tons)	687.6	815.8	843.3	835.2	792.7	723.8	823.9
Exports (metric tons) 1/	93.4	100.4	83.2	84.1	83.1	97.7	94.9
Consumption (metric tons) 2/	758.8	782.6	779.1	809.5	812.9	802.2	819.7
Ending stocks (metric tons) 3/	110.7	143.9	208.1	233.9	213.6	135.2	139.3
Rice, milled							
Area (hectares)	144.2	144.3	144.9	145.1	141.0	144.2	
Production (metric tons)	307.9	318.8	320.0	318.3	312.7	322.7	325.0
Exports (metric tons) 4/	12.6	11.4	12.6	12.8	11.8	12.9	12.7
Consumption (metric tons) 2/	304.5	310.6	319.7	323.1	320.5	320.8	326.5
Ending stocks (metric tons) 3/	46.6	54.9	54.0	49.2	41.4	43.3	41.8
Total grains							
Area (hectares)	708.1	710.0	715.4	710.0	684.3	689.6	
Production (metric tons)	1,484.8	1,646.5	1,663.4	1,684.2	1,609.1	1,547.7	1,681.5
Exports (metric tons) 1/	208.0	218.8	180.8	187.6	200.4	208.9	205.0
Consumption (metric tons) 2/	1,537.4	1,586.2	1,595.0	1,655.0	1,666.9	1,658.4	1,681.3
Ending stocks (metric tons) 3/	302.5	362.8	430.0	459.2	401.3	290.5	290.6
Oilseeds							
Crush (metric tons)	135.8	150.7	155.1	161.3	166.4	167.4	
Production (metric tons)	165.0	191.1	196.1	194.1	207.5	199.7	
Exports (metric tons)	33.0	33.1	34.6	37.7	39.5	33.2	
Ending stocks (metric tons)	15.7	21.1	26.8	23.3	23.7	17.3	
Meals							
Production (metric tons)	92.5	101.8	105.0	110.4	114.1	113.1	
Exports (metric tons)	29.7	32.3	34.4	36.6	36.3	37.5	
Oils							
Production (metric tons)	42.1	46.2	49.5	50.4	52.8	53.4	
Exports (metric tons)	13.7	15.6	16.4	16.9	17.5	17.4	
Cotton							
Area (hectares)	31.0	33.9	31.9	29.9	32.2	34.3	
Production (bales)	65.6	88.2	79.6	70.4	80.6	84.3	82.5
Exports (bales)	19.2	20.2	20.2	26.0	23.5	24.6	25.5
Consumption (bales)	68.3	70.0	75.8	82.5	83.4	82.9	85.0
Ending stocks (bales)	24.0	42.4	47.2	34.5	32.2	33.5	30.8
	1983	1984	1985	1986	1987	1988	1989 F
Red meat							
Production (metric tons)	97.5	99.6	103.5	106.4	108.8	109.9	110.6
Consumption (metric tons)	95.8	97.6	101.5	105.3	107.1	108.6	109.2
Exports (metric tons) 1/	5.9	5.9	6.2	6.6	6.6	6.7	6.9
Poultry							
Production (metric tons)	24.4	25.2	26.2	27.4	29.2	30.1	31.1
Consumption (metric tons)	24.3	24.8	26.0	27.0	28.8	29.7	30.7
Exports (metric tons) 1/	1.3	1.3	1.2	1.3	1.5	1.5	1.5
Dairy							
Milk production (metric tons)	413.0	413.5	419.1	426.8	427.1	428.7	433.6

1/ Excludes intra-EC trade. 2/ Where stocks data not available (excluding USSR), consumption includes stock changes.  
 3/ Stocks data are based on differing marketing years & do not represent levels at a given date. Data not available for all countries; includes estimated change in USSR grain stocks but not absolute level. 4/ Calendar year data. 1984 data correspond with 1983/84, etc. P = preliminary. F = forecast.

Information contacts: Frederic Surls (202) 786-1824; red meat & poultry, Linda Bailey (202) 786-1286; dairy, Sara Short (202) 786-1769.



# U.S. Agricultural Trade

Table 27.—Prices of Principal U.S. Agricultural Trade Products

	Annual			1988				1989		
	1986	1987	1988	Mar	Oct	Nov	Dec	Jan	Feb	Mar
Export commodities										
Wheat, f.o.b. vessel, Gulf ports (\$/bu.)	3.19	3.11	3.97	3.42	4.02	4.48	4.55	4.75	4.70	4.88
Corn, f.o.b. vessel, Gulf ports (\$/bu.)	2.27	1.95	2.73	2.30	3.08	2.90	3.00	3.03	3.00	3.03
Grain sorghum, f.o.b. vessel, Gulf ports (\$/bu.)	2.16	1.88	2.52	2.17	2.76	2.61	2.79	2.81	2.81	2.83
Soybeans, f.o.b. vessel, Gulf ports (\$/bu.)	5.45	5.55	7.81	6.55	8.10	7.84	8.07	8.09	7.89	8.05
Soybean oil, Decatur (cts./lb.)	16.36	15.85	23.52	20.08	23.13	21.31	21.75	20.98	21.02	22.02
Soybean meal, Decatur (\$/ton)	157.62	175.57	234.75	191.01	258.06	248.95	246.48	248.76	234.18	235.70
Cotton, 8-market avg. spot (cts./lb.)	53.47	64.35	57.25	59.66	52.20	54.40	54.85	55.67	55.39	57.60
Tobacco, avg. price at auction (cts./lb.)	153.96	144.34	148.95	141.11	159.62	162.15	162.38	162.27	159.74	159.74
Rice, f.o.b. mill, Houston (\$/cwt)	14.60	13.15	19.60	24.06	15.25	15.00	15.00	15.00	15.00	15.00
Inedible tallow, Chicago (cts./lb.)	9.03	13.79	16.64	17.25	15.02	14.18	16.33	14.90	16.00	14.86
Import commodities										
Coffee, N.Y. spot (\$/lb.)	2.01	1.09	1.21	1.27	1.13	1.17	1.31	1.46	1.31	1.28
Rubber, N.Y. spot (cts./lb.)	42.87	50.65	59.20	54.92	55.17	52.98	54.13	55.95	59.34	56.69
Cocoa beans, N.Y. (\$/lb.)	.88	.87	.69	.73	.58	.64	.66	.64	.68	.64

Information contact: Mary Teymourian (202) 786-1820.

Table 28.—Indexes of Real Trade-Weighted Dollar Exchange Rates <sup>1</sup>

	1988								1989			
	May	June	July	Aug	Sept	Oct	Nov P	Dec P	Jan P	Feb P	Mar P	Apr P
	1980=100											
Total U.S. trade 2/	100.3	103.6	108.4	110.5	110.5	107.6	103.5	103.3	106.9	107.9	107.5	107.1
Agricultural trade												
U.S. markets	103.1	104.6	106.7	107.3	108.7	106.4	103.6	103.2	105.2	105.6	105.5	105.0
U.S. competitors	124.6	125.1	126.6	128.1	128.7	127.7	126.1	125.5	127.4	128.2	128.3	128.2
Wheat												
U.S. markets	114.0	114.2	116.3	116.5	120.3	118.6	117.4	118.2	122.5	123.3	125.0	125.9
U.S. competitors	119.3	119.2	119.7	120.7	119.7	116.6	114.2	111.3	110.3	109.7	108.0	106.2
Soybeans												
U.S. markets	99.4	101.7	105.5	106.7	106.7	104.2	100.6	100.4	103.2	103.8	103.7	102.9
U.S. competitors	188.5	190.4	186.3	185.9	177.9	176.0	178.8	173.1	172.3	170.2	167.7	166.0
Corn												
U.S. markets	92.1	94.3	95.7	96.0	96.5	94.0	90.8	90.2	91.5	91.7	91.0	90.1
U.S. competitors	164.8	169.6	170.7	171.6	164.8	159.3	155.0	148.8	145.9	142.8	138.5	134.5
Cotton												
U.S. markets	99.8	100.8	103.2	103.7	104.0	102.1	99.1	98.6	100.2	100.4	99.8	99.2
U.S. competitors	102.8	101.0	100.7	99.5	102.0	99.5	97.7	96.5	96.3	95.4	95.1	94.0

<sup>1</sup> Real indexes adjust nominal exchange rates for differences in rates of inflation, to avoid the distortion caused by high-inflation countries. A higher value means the dollar has appreciated. See the October 1988 issue of Agricultural Outlook for a discussion of the calculations and the weights used. <sup>2</sup> Federal Reserve Board Index of trade-weighted value of the U.S. dollar against 10 major currencies. Weights are based on relative importance in world financial markets. P = preliminary.

Information contact: Tim Baxter, David Stallings (202) 786-1706.

Table 29.—Trade Balance

	Fiscal year 1/									Feb
	1981	1982	1983	1984	1985	1986	1987	1988	1989 F	1989
	\$ million									
Exports										
Agricultural	43,780	39,097	34,769	38,027	31,201	26,309	27,876	35,334	38,000	3,479
Nonagricultural	185,423	176,308	159,373	170,014	179,236	176,628	202,911	259,013	--	23,632
Total 2/	229,203	215,405	194,142	208,041	210,437	202,937	230,787	294,347	--	27,111
Imports										
Agricultural	17,218	15,485	16,373	18,916	19,740	20,875	20,650	21,011	21,000	1,873
Nonagricultural	237,469	233,349	230,527	297,736	313,722	342,855	367,374	409,141	--	35,263
Total 3/	254,687	248,834	246,900	316,652	333,462	363,730	388,024	430,152	--	37,136
Trade balance										
Agricultural	26,562	23,612	18,396	19,111	11,461	5,434	7,226	14,323	17,000	1,606
Nonagricultural	-52,046	-57,041	-71,154	-127,722	-134,486	-166,227	-164,463	-150,128	--	-11,631
Total	-25,484	-33,429	-52,758	-108,611	-123,025	-160,793	-157,237	-135,805	--	-10,025

<sup>1</sup> Fiscal years begin October 1 & end September 30. Fiscal year 1988 began Oct. 1, 1987 & ended Sept. 30, 1988.

<sup>2</sup> Domestic exports including Department of Defense shipments (F.A.S. value). <sup>3</sup> Imports for consumption (customs value). F = forecast. -- = not available.

Information contact: Stephen MacDonald (202) 786-1822.

Table 30.—U.S. Agricultural Exports &amp; Imports

	Fiscal year*				Feb 1989	Fiscal year*				Feb 1989
	1986	1987	1988	1989 F		1986	1987	1988	1989 F	
	1,000 units					\$ million				
EXPORTS										
Animals, live (no.) 1/	570	275	1,082	--	72	344	331	452	--	35
Meats & preps., excl. poultry (mt)	451	548	631	2/600	55	1,012	1,300	1,797	--	169
Dairy products (mt)	480	445	388	--	44	431	491	536	500	33
Poultry meats (mt)	265	376	390	400	37	282	406	424	--	39
Fats, oils, & greases (mt)	1,355	1,220	1,362	3/1,400	128	477	417	545	--	49
Hides & skins incl. furskins	--	--	--	--	--	1,440	1,666	1,838	--	147
Cattle hides, whole (no.) 1/	25,596	24,333	23,282	--	2,017	1,131	1,254	1,457	--	104
Mink pelts (no.) 1/	2,697	2,760	2,455	--	633	65	103	88	--	21
Grains & feeds (mt)	74,358	90,211	108,905	--	9,572	9,472	9,059	12,581	4/16,300	1,407
Wheat (mt)	25,501	28,204	40,501	39,000	3,460	3,260	2,877	4,467	5/6,200	553
Wheat flour (mt)	1,094	1,305	1,046	1,200	129	203	207	171	--	28
Rice (mt)	2,382	2,454	2,173	2,400	212	648	551	731	700	63
Feed grains, incl. products (mt)	36,236	47,606	53,308	59,000	4,837	3,817	3,752	5,209	7,100	587
Feeds & fodders (mt)	8,392	10,113	11,233	6/11,000	880	1,286	1,455	1,719	--	149
Other grain products (mt)	1,015	755	908	--	104	332	285	361	--	39
Fruits, nuts, and preps. (mt)	2,003	2,146	2,409	--	206	1,766	2,050	2,368	--	170
Fruit juices incl.										
froz. (1,000 hectoliters) 1/	3,652	4,364	5,497	--	330	148	185	252	--	18
Vegetables & preps. (mt)	1,442	1,629	1,826	--	207	997	1,176	1,282	--	122
Tobacco, unmanufactured (mt)	224	224	229	200	26	1,318	1,203	1,296	1,300	145
Cotton, excl. linters (mt)	482	1,306	1,388	1,100	161	678	1,419	2,136	1,700	219
Seeds (mt)	269	305	286	--	43	367	371	415	400	55
Sugar, cane or beet (mt)	375	582	318	--	36	75	113	98	--	13
Oilseeds & products (mt)	27,583	29,725	29,471	--	2,196	6,271	6,308	7,700	6,900	682
Oilseeds (mt)	20,684	21,905	21,366	--	1,607	4,394	4,423	5,238	--	483
Soybeans (mt)	20,139	21,394	20,908	15,400	1,527	4,174	4,205	5,008	4,500	451
Protein meal (mt)	5,614	6,786	6,406	4,500	471	1,132	1,347	1,502	1,200	130
Vegetable oils (mt)	1,284	1,035	1,699	--	118	746	538	961	--	69
Essential oils (mt)	7	8	9	--	1	105	111	120	--	16
Other	568	565	668	--	134	1,126	1,273	1,495	--	160
Total	109,862	129,290	148,280	145,000	12,846	26,309	27,876	35,334	38,000	3,479
IMPORTS										
Animals, live (no.) 1/	1,885	1,994	2,238	--	288	637	610	729	600	84
Meats & preps., excl. poultry (mt)	1,139	1,282	1,280	--	86	2,248	2,797	2,788	--	191
Beef & veal (mt)	693	778	779	750	52	1,252	1,575	1,681	1,600	120
Pork (mt)	406	462	456	435	29	900	1,125	1,001	900	60
Dairy products (mt)	400	461	337	400	16	786	849	881	800	51
Poultry & products 1/	--	--	--	--	--	101	112	97	--	10
Fats, oils, & greases (mt)	22	21	20	--	1	17	18	19	--	1
Hides & skins, incl. furskins 1/	--	--	--	--	--	200	304	247	--	33
Wool, unmanufactured (mt)	53	60	56	--	7	160	201	292	--	44
Grains & feeds (mt)	2,311	2,336	3,050	3,100	353	668	727	868	900	100
Fruits, nuts, & preps., excl. juices (mt)	4,637	4,840	4,797	4,895	485	1,976	2,179	2,169	--	230
Bananas & plantains (mt)	3,042	3,106	3,030	3,050	247	740	817	820	800	72
Fruit juices (1,000 hectoliters) 1/	31,539	34,059	26,754	27,000	2,589	698	728	767	--	71
Vegetables & preps. (mt)	2,199	2,446	2,521	2,500	353	1,560	1,509	1,593	1,600	244
Tobacco, unmanufactured (mt)	208	225	217	210	12	606	634	611	600	42
Cotton, unmanufactured (mt)	41	38	36	--	1	14	7	9	--	7/
Seeds (mt)	89	133	143	140	22	111	156	153	200	20
Nursery stock & cut flowers 1/	--	--	--	--	--	353	369	419	--	48
Sugar, cane or beet (mt)	1,905	1,492	1,069	--	112	654	497	368	--	39
Oilseeds & products (mt)	1,508	1,572	1,772	1,750	174	639	579	838	900	78
Oilseeds (mt)	197	165	208	--	47	69	56	71	--	17
Protein meal (mt)	138	245	253	--	24	15	30	42	--	5
Vegetable oils (mt)	1,173	1,162	1,311	--	103	555	493	725	--	55
Beverages excl. fruit juices (1,000 hectoliters) 1/	15,488	15,547	15,583	--	919	1,848	1,923	2,008	--	110
Coffee, tea, cocoa, spices (mt)	1,940	1,915	1,842	--	145	6,099	4,868	4,274	--	318
Coffee, incl. products (mt)	1,223	1,206	1,050	1,000	82	4,400	3,233	2,600	2,900	203
Cocoa beans & products (mt)	507	503	562	530	46	1,189	1,087	1,164	1,000	81
Rubber & allied gums (mt)	801	824	846	840	52	615	714	949	900	62
Other	--	--	--	--	--	885	868	931	--	99
Total	--	--	--	--	--	20,875	20,650	21,011	21,000	1,873

\*Fiscal years begin Oct. 1 & end Sept. 30. Fiscal year 1988 began Oct. 1, 1987 & ended Sept. 30, 1988. 1/ Not included in total volume. 2/ Forecasts for footnoted items 2/6/ are based on slightly different groups of commodities. Fiscal 1988 exports of categories used in the 1989 forecasts were 2/ 561,000 m. tons. 3/ 1.347 million dollars 4/ 12,743 million. 5/ 4,638 million, i.e. includes flour. 6/ 11.095 million m. tons. 7/ Less than \$500. F = forecast. -- = not available.

Information contact: Stephen MacDonald (202) 786-1822.



Table 31.—U.S. Agricultural Exports by Region

Region & country	Fiscal year*				Feb	Change from year* earlier				Feb
	1986	1987	1988	1989 F	1989	1986	1987	1988	1989 F	1989
	\$ million					Percent				
Western Europe	6,848	7,219	8,029	7,800	709	-5	5	11	-2	-20
European Community (EC-12)	6,432	6,787	7,513	7,300	667	-4	5	11	-3	-20
Belgium-Luxembourg	361	423	429	--	22	-23	17	1	--	-51
France	431	495	565	--	37	9	15	14	--	-31
Germany, Fed. Rep.	1,001	1,266	1,306	--	102	11	26	3	--	-35
Italy	693	733	713	--	69	2	6	-3	--	-5
Netherlands	2,042	1,954	2,087	--	180	6	-4	7	--	-25
United Kingdom	628	666	819	--	52	0	-6	23	--	-33
Portugal	308	271	340	--	27	-39	-12	25	--	-44
Spain, incl. Canary Islands	723	658	848	--	147	-13	-9	29	--	37
Other Western Europe	415	432	516	500	43	-19	34	20	0	-16
Switzerland	128	145	191	--	17	-45	13	32	--	-32
Eastern Europe	447	453	559	500	30	-16	1	23	-11	-49
German Dem. Rep.	52	66	67	--	6	-36	27	0	--	500
Poland	42	63	167	--	2	-66	50	165	--	90
Yugoslavia	134	131	104	--	2	-2	-2	-21	--	100
Romania	112	115	93	--	2	27	3	-19	--	-90
USSR	1,105	659	1,934	2,900	412	-56	-40	193	50	50
Asia	10,494	11,990	15,928	17,700	1,506	-12	14	33	11	18
West Asia (Mideast)	1,243	1,664	1,903	1,900	196	-14	34	14	0	29
Turkey	111	117	120	--	30	-13	5	3	--	20
Iraq	335	528	735	900	81	-10	58	39	29	47
Israel	255	244	334	--	33	-15	-4	37	--	74
Saudi Arabia	335	489	464	400	28	-12	46	-5	-13	4
South Asia	517	345	805	--	50	-14	-33	133	--	-22
Bangladesh	94	111	107	--	9	-54	18	-3	--	80
India	90	93	354	--	13	-30	3	281	--	-59
Pakistan	285	98	276	400	20	25	-66	181	33	-5
China	83	235	613	1,200	146	-65	183	161	96	462
Japan	5,139	5,554	7,274	8,200	653	-9	8	31	13	9
Southeast Asia	724	708	1,015	--	89	-14	-2	43	--	-8
Indonesia	172	152	238	--	20	-16	-12	56	--	82
Philippines	269	259	345	300	23	-6	-4	33	0	-21
Other East Asia	2,788	3,485	4,318	4,600	372	-11	25	24	7	10
Taiwan	1,109	1,354	1,577	1,600	147	-17	22	16	0	28
Korea, Rep.	1,277	1,693	2,250	2,500	172	-9	33	33	11	-10
Hong Kong	400	436	488	500	53	1	9	12	0	71
Africa	2,134	1,784	2,272	2,400	189	-16	-16	27	6	-10
North Africa	1,401	1,279	1,659	1,800	170	16	-9	30	8	3
Morocco	159	196	193	--	36	2	23	-2	--	112
Algeria	329	244	537	700	12	50	-26	120	30	-82
Egypt	875	761	786	900	118	14	-13	3	15	82
Sub-Saharan	733	505	613	600	19	-44	-31	21	0	-58
Nigeria	158	67	44	--	1	-57	-58	-35	--	-67
Rep. S. Africa	70	49	85	--	2	-63	-30	74	--	-50
Latin America & Caribbean	3,598	3,765	4,401	4,600	449	-21	5	17	2	66
Brazil	445	418	176	200	4	-20	-6	-58	0	-50
Caribbean Islands	752	829	867	--	76	-2	10	5	--	4
Central America	334	377	413	--	31	-7	13	10	--	-6
Colombia	137	115	178	--	7	-42	-16	55	--	-46
Mexico	1,114	1,215	1,726	2,000	209	-29	9	42	16	194
Peru	108	140	174	--	1	2	30	24	--	-93
Venezuela	493	459	597	500	92	-32	-7	30	-16	124
Canada	1,466	1,776	1,973	2,000	164	-15	21	11	0	4
Oceania	216	230	238	200	20	6	6	3	0	0
Total	26,309	27,876	35,334	38,000	3,479	-16	6	27	3	10
Developed countries	13,954	15,031	17,883	18,400	1,574	-8	8	19	3	-6
Less developed countries	10,719	11,498	14,346	15,000	1,316	-15	7	25	5	18
Centrally planned countries	1,636	1,347	3,106	4,600	588	-50	-18	131	48	63

\*Fiscal years begin Oct. 1 & end Sept. 30. Fiscal year 1988 began Oct. 1, 1987 & ended Sept. 30, 1988. F = forecast.

-- = not available.

Note: Adjusted for transshipments through Canada.

Information contact: Stephen MacDonald (202) 786-1822.

## Farm Income

Table 32.—Farm Income Statistics

	Calendar year										
	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988 F	1989 F
	\$ billion										
1. Farm receipts	133.8	142.0	144.1	147.1	141.1	146.8	149.1	140.2	143.7	157	156 to 161
Crops (incl. net CCC loans)	62.3	71.7	72.5	72.3	67.1	69.5	74.2	63.6	61.9	72	72 to 76
Livestock	69.2	68.0	69.2	70.3	69.4	73.0	69.8	71.5	76.2	78	79 to 82
Farm related 1/	2.2	2.3	2.5	4.5	4.5	4.4	5.0	5.1	5.6	6	5 to 7
2. Direct Government payments	1.4	1.3	1.9	3.5	9.3	8.4	7.7	11.8	16.8	14	10 to 12
Cash payments	1.4	1.3	1.9	3.5	4.1	4.0	7.6	8.1	6.7	8	7 to 11
Value of PIK commodities	0.0	0.0	0.0	0.0	5.2	4.5	0.1	3.7	10.1	7	1 to 2
3. Total gross farm income (4+5+6) 2/	150.7	149.3	166.4	163.5	153.1	174.9	166.1	159.8	169.8	172	185 to 191
4. Gross cash income (1+2)	135.1	143.3	146.0	150.6	150.4	155.2	156.7	152.0	160.5	170	168 to 173
5. Nonmoney income 3/	10.6	12.3	13.8	14.3	13.5	13.4	11.8	10.6	10.0	10	8 to 10
6. Value of inventory change	5.0	-6.3	6.5	-1.4	-10.9	6.3	-2.4	-2.8	-6	-6	8 to 10
7. Cash expenses 4/	101.7	109.1	113.2	112.8	113.5	116.6	110.2	100.6	103.3	113	115 to 119
8. Total expenses	123.3	133.1	139.4	140.0	140.4	142.7	134.0	122.3	123.5	133	136 to 140
9. Net cash income (4-7)	33.4	34.2	32.8	37.8	36.9	38.7	46.6	51.4	57.1	58	50 to 55
10. Net farm income (3-8)	27.4	16.1	26.9	23.5	12.7	32.3	32.2	37.4	46.3	41	47 to 52
Deflated (1982s)	34.9	18.8	28.6	23.5	12.2	30.0	28.9	32.8	39.5	34	39 to 43
11. Off-farm income	33.8	34.7	35.8	36.4	37.0	38.9	42.6	44.6	46.8	49	48 to 51
12. Loan changes 5/: Real estate	13.0	9.9	9.1	3.8	2.3	-1.1	-6.0	-9.2	-7.7	-5	0 to 3
13.     5/: Non-real estate	11.2	5.3	6.5	3.4	0.9	-0.8	-9.6	-10.7	-4.9	1	2 to 3
14. Rental income plus monetary change	6.3	6.1	6.4	6.3	5.3	8.9	8.8	7.8	6.8	9	7 to 9
15. Capital expenditures 5/	20.1	18.0	16.8	13.3	12.7	12.5	9.6	8.6	9.8	11	10 to 12
16. Net cash flow (9+12+13+14-15)	43.8	37.6	37.8	38.1	32.7	33.2	30.2	30.7	41.5	53	50 to 56

1/ Income from machine hire, custom work, sales of forest products, & other miscellaneous cash sources. 2/ Numbers in parentheses indicate the combination of items required to calculate a given item. 3/ Value of home consumption of self-produced food & imputed gross rental value of farm dwellings. 4/ Excludes capital consumption, perquisites to hired labor, & farm household expenses. 5/ Excludes farm households. Totals may not add because of rounding. F = forecast.

Information contact: Andy Bernat (202) 786-1808.

Table 33.—Balance Sheet of the U.S. Farming Sector

	Calendar year 1/										
	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988 F	1989 F
	\$ billion										
Assets											
Real estate	706.2	782.9	784.7	748.8	739.6	639.6	558.6	510.1	522.6	551	585 to 595
Non-real estate	201.6	213.2	212.0	212.4	205.7	208.9	190.4	181.5	186.6	200	196 to 202
Livestock & poultry	61.4	60.6	53.5	53.0	49.7	49.6	46.3	47.6	57.9	66	65 to 69
Machinery & motor vehicles	85.8	93.1	101.4	102.0	100.8	96.9	87.6	80.3	73.9	74	74 to 78
Crops stored 2/	29.2	33.0	29.1	27.9	23.9	29.6	23.5	19.1	20.5	25	18 to 22
Financial assets	25.3	26.5	28.0	29.5	31.3	32.8	33.0	34.4	34.3	35	35 to 37
Total farm assets	907.8	996.1	996.7	961.2	945.3	848.5	749.0	691.6	709.2	751	785 to 795
Liabilities											
Real estate debt 3/	79.7	89.6	98.7	102.5	104.8	103.7	97.7	88.5	80.8	76	75 to 79
Non-real estate debt 4/	71.8	77.1	83.6	87.0	87.9	87.1	77.5	66.8	61.9	62	60 to 64
Total farm debt	151.6	166.8	182.3	189.5	192.7	190.8	175.2	155.3	142.7	138	134 to 142
Total farm equity	756.2	829.3	814.4	771.7	752.6	657.7	573.8	536.3	566.5	613	648 to 658
	Percent										
Selected ratios											
Debt-to-assets	16.7	16.7	18.3	19.7	20.4	22.5	23.4	22.5	20.1	18.4	16 to 19
Debt-to-equity	20.0	20.1	22.4	24.6	25.6	29.0	30.5	29.0	25.2	22.5	20 to 22
Debt-to-net cash income 454	488	488	556	497	523	493	376	302	250	236	255 to 265

1/ As of Dec. 31. 2/ Non-CCC crops held on farms plus value above loan rates for crops held under CCC. 3/ Excludes debt on operator dwellings, but includes CCC storage and drying facilities loans. 4/ Excludes debt for nonfarm purposes. F = forecast.

Information contacts: Ken Erickson or Jim Ryan (202) 786-1798.



Table 34.—Cash Receipts from Farm Marketings, by State

Region & State	Livestock & products				Crops 1/				Total 1/			
	1987	1988	Jan 1989	Feb 1989	1987	1988	Jan 1989	Feb 1989	1987	1988	Jan 1989	Feb 1989
	\$ million 2/											
<b>North Atlantic</b>												
Maine	243	231	20	18	170	191	20	22	413	422	40	41
New Hampshire	66	66	6	6	38	77	6	5	104	143	12	11
Vermont	377	363	34	30	35	52	3	3	412	415	37	33
Massachusetts	124	124	11	10	268	298	22	11	393	422	33	21
Rhode Island	12	13	1	1	63	65	3	3	75	78	4	4
Connecticut	196	192	19	16	170	202	37	11	366	394	56	27
New York	1,800	1,754	164	143	726	833	51	46	2,527	2,586	215	189
New Jersey	140	197	17	15	423	452	20	19	563	649	37	34
Pennsylvania	2,319	2,354	208	196	905	938	99	76	3,224	3,293	308	272
<b>North Central</b>												
Ohio	1,614	1,554	139	131	1,808	2,030	135	106	3,422	3,584	273	237
Indiana	1,856	1,706	140	130	2,016	2,369	207	190	3,872	4,075	347	319
Illinois	2,262	2,171	185	158	3,913	4,215	458	434	6,174	6,386	643	592
Michigan	1,285	1,235	112	100	1,219	1,507	121	87	2,504	2,742	234	187
Wisconsin	4,222	4,127	341	326	795	776	50	45	5,017	4,903	390	371
Minnesota	3,645	3,582	302	291	2,165	2,823	223	140	5,809	6,405	525	431
Iowa	5,270	5,018	446	441	3,510	4,029	333	239	8,780	9,046	779	680
Missouri	2,173	2,232	215	193	1,517	1,823	205	115	3,691	4,055	419	308
North Dakota	760	884	104	99	1,548	1,615	79	77	2,308	2,499	182	176
South Dakota	1,910	1,949	220	183	813	946	71	47	2,723	2,895	291	230
Nebraska	4,848	5,070	533	470	1,975	2,634	404	194	6,823	7,704	937	665
Kansas	3,914	4,207	461	377	1,807	2,328	288	120	5,722	6,535	749	497
<b>Southern</b>												
Delaware	370	448	47	43	114	150	5	7	485	598	52	50
Maryland	734	784	74	72	394	458	25	23	1,128	1,242	99	95
Virginia	1,244	1,372	108	101	448	588	40	24	1,692	1,960	147	125
West Virginia	169	187	14	13	52	70	6	5	221	256	20	17
North Carolina	2,081	2,144	178	130	1,634	1,995	64	48	3,715	4,139	242	177
South Carolina	461	492	42	37	470	600	31	16	931	1,092	73	53
Georgia	1,826	1,946	188	176	1,261	1,533	68	47	3,087	3,479	256	223
Florida	1,102	1,171	101	101	4,125	4,595	663	560	5,227	5,766	764	660
Kentucky	1,506	1,535	130	87	913	992	300	78	2,419	2,527	431	165
Tennessee	1,107	1,123	99	101	826	970	118	35	1,933	2,093	218	136
Alabama	1,560	1,857	157	149	588	712	72	24	2,148	2,569	229	173
Mississippi	1,040	1,184	102	99	939	1,167	126	80	1,979	2,351	229	179
Arkansas	2,116	2,271	182	181	1,027	1,714	115	63	3,143	3,985	297	244
Louisiana	521	553	39	40	899	1,315	128	34	1,420	1,868	168	74
Oklahoma	2,052	2,350	178	195	700	1,106	88	65	2,752	3,456	266	260
Texas	6,059	6,394	551	482	3,027	3,785	549	518	9,086	10,178	1,100	999
<b>Western</b>												
Montana	760	814	71	59	587	572	53	36	1,347	1,386	124	95
Idaho	926	967	110	97	1,120	1,279	101	75	2,047	2,246	211	171
Wyoming	528	558	41	38	114	155	11	8	642	713	52	46
Colorado	2,321	2,478	297	264	870	1,039	123	83	3,191	3,517	420	346
New Mexico	817	873	61	90	331	364	25	16	1,147	1,238	85	107
Arizona	774	811	46	58	1,007	1,182	157	49	1,781	1,993	202	107
Utah	462	505	39	33	134	150	15	11	596	655	53	44
Nevada	167	171	15	16	76	79	6	6	243	250	21	22
Washington	982	1,023	96	86	1,860	2,139	212	143	2,841	3,162	307	229
Oregon	655	702	51	56	1,206	1,438	103	76	1,861	2,140	154	132
California	4,741	4,831	406	441	10,781	11,305	701	555	15,522	16,136	1,107	996
Alaska	11	10	1	1	19	20	1	1	29	30	2	2
Hawaii	88	88	7	7	471	500	42	38	559	588	49	45
<b>United States</b>	<b>76,218</b>	<b>78,669</b>	<b>7,108</b>	<b>6,583</b>	<b>61,876</b>	<b>72,176</b>	<b>6,782</b>	<b>4,713</b>	<b>138,094</b>	<b>150,845</b>	<b>13,891</b>	<b>11,296</b>

1/ Sales of farm products include receipts from commodities placed under CCC loans minus value of redemptions during the period. 2/ Estimates as of end of current month. Totals may not add because of rounding.

Information contact: Roger Strickland (202) 786-1804.

Table 35.—Cash Receipts from Farming

	Annual						1988				1989	
	1983	1984	1985	1986	1987	1988	Feb	Oct	Nov	Dec	Jan	Feb
	\$ million											
Farm marketings & CCC loans*	136,567	142,436	144,015	135,102	138,094	150,845	10,493	16,827	15,406	13,255	13,891	11,296
Livestock & products	69,438	72,966	69,842	71,548	76,218	78,669	6,308	7,496	7,168	6,302	7,108	6,583
Meat animals	38,893	40,832	38,589	39,122	44,716	46,101	4,067	4,583	4,129	3,408	4,263	4,060
Dairy products	18,763	17,944	18,063	17,753	17,829	17,482	1,286	1,532	1,531	1,642	1,584	1,411
Poultry & eggs	9,981	12,223	11,211	12,678	11,487	12,748	817	1,228	1,196	1,102	1,090	974
Other	1,801	1,967	1,979	1,994	2,187	2,338	138	153	312	150	172	138
Crops	67,129	69,469	74,173	63,554	61,876	72,176	4,185	9,331	8,239	6,953	6,782	4,713
Food grains	9,713	9,740	8,993	5,631	5,411	7,679	351	762	521	572	604	345
Feed crops	13,535	15,668	22,520	16,982	13,061	15,286	1,016	1,536	1,597	1,334	1,426	1,262
Cotton (lint & seed)	3,705	3,674	3,687	3,551	4,027	4,666	359	565	873	1,289	729	530
Tobacco	2,752	2,813	2,722	1,918	1,827	2,039	30	319	368	145	374	17
Oil-bearing crops	13,546	13,641	12,474	10,592	10,800	13,697	712	3,354	1,644	937	1,477	713
Vegetables & melons	8,459	9,138	8,558	8,630	9,223	9,536	535	914	547	512	933	690
Fruits & tree nuts	6,056	6,737	6,843	7,288	7,869	8,674	519	981	1,149	951	553	490
Other	7,365	8,060	8,378	8,962	9,658	10,599	663	900	1,541	1,212	684	666
Government payments	9,295	8,430	7,704	11,813	16,747	14,480	286	2,658	513	468	330	2,207
Total	145,862	150,866	151,719	146,915	154,841	165,325	10,779	19,485	15,919	13,723	14,221	13,503

\*Receipts from loans represent value of commodities placed under CCC loans minus value of redemptions during the month.

Information contact: Roger Strickland (202) 786-1804.

Table 36.—Farm Production Expenses

	Calendar year									
	1980	1981	1982	1983	1984	1985	1986	1987	1988 F	1989 F
	\$ million									
Feed	20,971	20,855	18,592	21,725	19,852	18,015	16,179	16,093	20,600	20,000 to 24,000
Livestock	10,670	8,999	9,684	8,814	9,498	8,958	9,744	12,014	13,200	11,000 to 14,000
Seed	3,220	3,428	3,172	2,993	3,448	3,350	2,984	3,009	3,000	3,000 to 4,000
Farm-origin inputs	34,861	33,282	31,448	33,532	32,798	30,323	28,907	31,116	36,900	36,000 to 40,000
Fertilizer	9,491	9,409	8,018	7,067	7,429	7,259	5,787	5,392	5,900	6,000 to 8,000
Fuels & oils	7,879	8,570	7,888	7,503	7,143	6,584	4,790	4,442	4,600	4,000 to 6,000
Electricity	1,526	1,747	2,041	2,146	2,166	2,150	1,942	2,393	2,500	2,000 to 3,000
Pesticides	3,539	4,201	4,282	4,154	4,767	4,994	4,485	4,588	4,600	5,000 to 6,000
Manufactured inputs	22,435	23,927	22,229	20,870	21,505	20,987	17,004	16,815	17,600	18,000 to 22,000
Short-term interest	8,717	10,722	11,349	10,615	10,396	8,821	7,795	7,305	7,800	7,000 to 9,000
Real estate interest 1/	7,544	9,142	10,481	10,815	10,733	9,878	9,131	8,202	8,300	7,000 to 9,000
Total interest charges	16,261	19,864	21,830	21,430	21,129	18,699	16,926	15,508	16,000	15,000 to 17,000
Repair & maintenance 1/ 2/	7,075	7,021	6,428	6,529	6,416	6,370	6,426	6,546	7,000	7,000 to 8,000
Contract & hired labor	9,293	8,931	10,075	9,725	9,729	9,799	9,879	10,747	11,400	11,000 to 13,000
Machine hire & custom work	1,823	1,984	2,025	1,896	2,170	2,184	1,810	1,956	2,100	2,000 to 3,000
Marketing, storage, & transportation	3,070	3,523	4,301	3,904	4,012	4,127	3,652	3,823	3,700	4,000 to 5,000
Misc. operating expenses 1/	6,881	6,909	7,262	9,089	9,106	8,232	7,993	8,311	7,600	6,000 to 8,000
Other operating expenses	28,142	28,368	30,089	31,143	31,433	30,712	29,760	31,383	33,200	32,000 to 36,000
Capital consumption 1/	21,474	23,573	24,287	23,873	23,105	20,847	18,916	17,348	16,800	17,000 to 18,000
Taxes 1/	3,891	4,246	4,036	4,469	4,059	4,231	4,125	4,345	4,400	4,000 to 5,000
Net rent to nonoperator landlord	6,075	6,184	6,059	5,060	8,640	8,158	6,698	6,987	7,800	7,000 to 8,000
Other overhead expenses	31,440	34,003	34,381	33,402	35,805	33,236	29,739	28,680	29,100	28,000 to 31,000
Total production expenses	133,139	139,444	139,980	140,377	142,669	133,957	122,335	123,502	132,800	136,000 to 140,000

1/ Includes operator dwellings. 2/ Beginning in 1982, miscellaneous operating expenses include other livestock purchases & dairy assessments. Totals may not add because of rounding. F = forecast.

Information contacts: Chris McGath (202) 786-1804, Andy Bernat (202) 786-1808.



Table 37.—CCC Net Outlays by Commodity &amp; Function

COMMODITY/PROGRAM	Fiscal year									
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989 E
	\$ million									
Feed grains	1,286	-533	5,397	6,815	-758	5,211	12,211	13,967	9,053	3,042
Wheat	879	1,543	2,238	3,419	2,536	4,691	3,440	2,836	678	279
Rice	-76	24	164	664	333	990	947	906	128	999
Upland cotton	64	336	1,190	1,363	244	1,553	2,142	1,786	666	2,538
Tobacco	-88	-51	103	880	346	455	253	-346	-453	-569
Dairy	1,011	1,894	2,182	2,528	1,502	2,085	2,337	1,166	1,295	662
Soybeans	116	87	169	288	-585	711	1,597	-476	-1,676	-32
Peanuts	28	28	12	-6	1	12	32	8	7	5
Sugar	-405	-121	-5	49	10	184	214	-65	-246	10
Honey	9	8	27	48	90	81	89	73	100	60
Wool	35	42	54	94	132	109	123	152	1/ 5	89
Operating expense	157	159	294	328	362	346	457	535	614	583
Interest expenditure	518	220	-13	3,525	1,064	1,435	1,411	1,219	395	283
Export programs	-669	-940	65	398	743	134	102	276	200	116
Other	-113	1,340	-225	-1,542	1,295	-314	486	371	1,695	5,788
Total	2,752	4,036	11,652	18,851	7,315	17,683	25,841	22,408	12,461	13,843
FUNCTION										
Price-support loans (net)	-66	174	7,015	8,438	-27	6,272	13,628	12,199	4,579	-153
Direct payments										
Deficiency	79	0	1,185	2,780	612	6,302	6,166	4,833	3,971	5,889
Diversion	56	0	0	705	1,504	1,525	64	382	8	0
Dairy termination	0	0	0	0	0	0	489	587	260	200
Other	25	0	0	0	0	0	27	60	0	83
Disaster	258	1,030	306	115	1	0	0	0	6	0
Total direct payments	418	1,030	1,491	3,600	2,117	7,827	6,746	5,862	4,245	6,172
1988 crop disaster	0	0	0	0	0	0	0	0	0	3,613
Emergency livestock/forage assistance	23	329	16	0	0	0	0	0	31	902
Purchases (net)	1,681	1,602	2,031	2,540	1,470	1,331	1,670	-479	-1,131	-10
Producer storage payments	254	32	679	964	268	329	485	832	658	319
Processing, storage, & transportation	259	323	355	665	639	657	1,013	1,659	1,113	654
Operating expense	157	159	294	328	362	346	457	535	614	583
Interest expenditure	518	220	-13	3,525	1,064	1,435	1,411	1,219	395	283
Export programs	-669	-940	65	398	743	134	102	276	200	116
Other	177	1,107	-281	-1,607	679	-648	329	305	1,757	1,364
Total	2,752	4,036	11,652	18,851	7,315	17,683	25,841	22,408	12,461	13,843

1/ Fiscal year 1988 wool & mohair program outlays were \$130,635,000 but include a one-time advance appropriation of \$126,108,000, which was recorded as a wool program receipt by treasury. E = estimated in the fiscal 1990 President's Budget. Minus (-) indicates a net receipt (excess of repayments or other receipts over gross outlays of funds).

Information contact: Richard Pazdalski (202) 447-5148.

## Food Expenditures

Table 38.—Food expenditure estimates

	Annual			1989				1989 year-to-date		
	1986	1987	1988	Jan	Feb	Mar P	Apr P	Feb	Mar P	Apr P
	\$ billion									
Sales 1/ Off-premise use 2/ Meals and snacks 3/	237.1 158.2	244.9 174.2	255.7 186.8	21.0 14.8	20.0 14.1	22.7 16.2	21.8 16.1	41.1 28.9	63.8 45.1	85.6 61.2
	1988 \$ billion									
Sales 1/ Off-premise use 2/ Meals and snacks 3/	257.6 171.3	255.2 181.3	255.7 186.8	20.2 14.5	19.2 13.7	21.6 15.7	20.6 15.6	39.4 28.2	61.0 43.9	81.5 59.4
	Percent change from year earlier (\$ bil.)									
Sales 1/ Off-premise use 2/ Meals and snacks 3/	3.3 6.7	3.3 10.1	4.4 7.2	5.8 8.5	5.6 4.8	9.1 8.6	5.5 5.6	5.7 6.6	6.8 7.3	6.5 6.9
	Percent change from year earlier (1988 \$ bil.)									
Sales 1/ Off-premise use 2/ Meals and snacks 3/	.3 2.7	-.8 5.8	.2 3.0	-.4 3.8	-1.5 .2	1.2 3.9	-2.1 1.0	-1.6 2.0	-.6 2.7	-1.0 2.2

1/ Food only (excludes alcoholic beverages). Not seasonally adjusted. 2/ Excludes donations and home production. 3/ Excludes donations, child nutrition subsidies, and meals furnished to employees, patients, and inmates. P = preliminary.

NOTE: This table is new to Agricultural Outlook. It differs from Personal Consumption Expenditures (PCE), table 2, for several reasons: (1) this series includes only food, not alcoholic beverages and pet food, which are included in PCE; (2) this series is not seasonally adjusted, whereas PCE is seasonally adjusted at annual rates; (3) this series reports sales only, but PCE includes food produced and consumed on farms and food furnished to employees; (4) this series includes all sales of meals and snacks. PCE includes only purchases using personal funds, excluding business travel and entertainment. For a more complete discussion of the differences, see "Developing an Integrated Information System for the Food Sector," Agr.-Econ. Rpt. No. 575, Aug. 1987.

Information contact: Alden Manchester (202) 786-1880.

## Transportation

Table 39.—Rail Rates; Grain & Fruit/Vegetable Shipments

	Annual			1988				1989		
	1986	1987	1988	Mar	Oct	Nov	Dec	Jan	Feb	Mar
Rail freight rate index 1/ (Dec. 1984=100)										
All products	100.7	100.1	104.8	103.2	105.4	105.4	105.4 P	105.9 P	105.9 P	105.9 P
Farm products	99.6	99.3	105.5	102.0	107.9	108.0	107.8 P	109.6 P	109.4 P	109.0 P
Grain	98.9	98.7	105.4	101.4	108.3	108.5	108.2 P	109.8 P	109.7 P	109.2 P
Food products	99.9	98.6	103.2	101.5	103.7	103.6	103.6 P	103.7 P	103.1 P	103.2 P
Grain shipments										
Rail carloadings (1,000 cars) 2/	24.4	29.0	30.7	34.2	30.7 P	27.1 P	27.4 P	30.2 P	30.1 P	31.8 P
Fresh fruit & vegetable shipments										
Piggy back (1,000 cwt) 3/ 4/	629	588	532	489	404	409	419	374	419	455 P
Rail (1,000 cwt) 3/ 4/	563	660	604	658	585	691	711	701	583	686 P
Truck (1,000 cwt) 3/ 4/	9,031	9,137	9,529	9,632	8,711	9,097	9,341	8,896	8,650	9,391 P
Cost of operating trucks										
hauling produce 5/										
Owner operator (cts./mile)	113.1	116.3	118.7	118.3	118.6	119.6	120.4	121.3	122.1	122.9
Fleet operation (cts./mile)	113.6	116.5	118.4	117.7	118.3	119.1	120.1	121.0	121.4	121.9

1/ Department of Labor, Bureau of Labor Statistics. 2/ Weekly average; from Association of American Railroads. 3/ Weekly average; from Agricultural Marketing Service, USDA. 4/ Preliminary data for 1988 & 1989. 5/ Office of Transportation, USDA. P = preliminary.

Information contact: T.G. Hutchinson (202) 786-1840.



## Indicators of Farm Productivity

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Table 40.—Indexes of Farm Production Input Use & Productivity<sup>1</sup>  
(See the March 1989 issue.)

Information contact: Jim Hauver (202) 786-1459.

## Food Supply and Use

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Table 41.—Per Capita Consumption of Major Food Commodities  
(See the March 1989 issue.)

Information contact: Judy Putnam (202) 786-1870.

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